



#4 Seebon
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Samir Kumar BRAHMACHARI et al.

Appln. No.: 09/820,843

Group Art Unit: Not Yet Assigned

Filed: March 30, 2001

Examiner: Not Yet Assigned

Confirmation number: 7045

For: A COMPUTATIONAL METHOD FOR THE IDENTIFICATION OF CANDIDATE
PROTEINS USEFUL AS ANTI-INFECTIVES

**STATEMENT TO SUPPORT FILING AND SUBMISSION IN
ACCORDANCE WITH 37 C.F.R. §§ 1.821-1.825**

Assistant Commissioner for Patents
Washington, D.C. 20231
Box SEQUENCE

Sir:

In connection with a Sequence Listing submitted concurrently herewith, the undersigned
hereby states that:

1. the submission, filed herewith in accordance with 37 C.F.R. § 1.821(g), does not
include any new matter;
2. the content of the attached paper copy and the attached computer readable copy of
the Sequence Listing, submitted in accordance with 37 C.F.R. § 1.821(c) and (e), respectively,
are the same; and
3. all statements made herein of my own knowledge are true and that all statements
made on information and belief are believed to be true, and further, that these statements were
made with the knowledge that willful false statements and the like so made are punishable by

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fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent resulting therefrom.

02

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SEQUENCE LISTING

<110> Council of Scientific and Industrial Research
<120> A COMPUTATIONAL METHOD FOR THE IDENTIFICATION OF CANDIDATE PROTEINS
USEFUL AS ANTI-INFECTIVES
<130> Q63915
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<170> PatentIn version 3.0
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<213> C. jejuni

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<223> highly acidic protein

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<223> gi|6967728

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Glu Asp Glu Glu Tyr Pro Gln Asn His His Lys Asn Tyr Asn Tyr Asp
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Asp Asp Asp Tyr Glu Tyr Asp Asp Asp Asn Asn Asp Asp Asp Phe Tyr
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Glu Met Asp
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Ile Ile Gly Phe Gly Gly Ile Val Phe Val Val Thr Lys Glu Lys Lys
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<213> C. jejuni

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Met Ser Phe Glu Glu Asn Leu Lys His Ala Asn Glu Ser Leu Glu Lys
1 5 10 15

Leu Asn Asn Gln Glu Leu Ala Leu Asp Glu Ser Val Lys Ile Tyr Lys
20 25 30

Glu Gly Leu Glu Ser Ile Lys Lys Ala Arg Leu Glu Leu Glu Lys Ala
35 40 45

Lys Leu Glu Val Glu Gln Ile Asp Glu
50 55

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Ser	Leu	Ser	Ala	Lys	Lys	Met	Ser	Tyr	Asp	Phe	Glu	Glu	Leu	Asn	Ala	20	25	30	
Tyr	Ser	Glu	Asn	Leu	Gly	Asn	Tyr	Asp	Val	Ile	Val	Val	Asp	Ser	Asp	35	40	45	
Thr	Pro	Ala	Pro	Leu	Lys	Ile	Leu	Lys	Glu	Lys	Cys	Asp	Arg	Leu	Ile	50	55	60	
Phe	Leu	Ala	Pro	Arg	Asn	Gln	Asn	Val	Glu	Asp	Ile	Asp	Ala	Gln	Ile	65	70	75	80
Leu	Gln	Lys	Pro	Phe	Leu	Pro	Thr	Asp	Phe	Leu	Asn	Leu	Leu	Asn	Asn	85	90	95	
Lys	Asp	Ala	Asn	Lys	His	Thr	Ser	Ile	Asp	Leu	Pro	Met	Leu	Ser	Asn	100	105	110	
Asp	Glu	Asn	Pro	Tyr	Ala	Asp	Ile	Ser	Leu	Asp	Leu	Asp	Asn	Leu	Asn	115	120	125	
Leu	Asp	Asp	Leu	Pro	Asp	Glu	Asn	Ser	Leu	Asp	Ile	Asn	Ser	Glu	Gly	130	135	140	
Met	Glu	Asp	Leu	Ser	Phe	Asp	Asp	Asp	Ala	Gln	Asp	Asp	Asn	Ala	Asn	145	150	155	160
Lys	Thr	Leu	Glu	Thr	Gln	Asn	Leu	Glu	His	Glu	Thr	Ile	Lys	Glu	Gln	165	170	175	
Thr	Gln	Glu	Asp	Thr	Gln	Ile	Asp	Leu	Asp	Leu	Thr	Leu	Glu	Asp	Gly	180	185	190	
Glu	Ser	Glu	Lys	Glu	Asp	Leu	Ser	Gln	Glu	His	Thr	Ala	Leu	Asp	Thr	195	200	205	
Glu	Pro	Ser	Leu	Asp	Glu	Leu	Asp	Asp	Lys	Asn	Asp	Glu	Asp	Leu	Glu	210	215	220	
Ile	Lys	Glu	Asp	Asp	Lys	Asn	Glu	Glu	Ile	Glu	Lys	Gln	Glu	Leu	Leu	225	230	235	240
Asp	Asp	Ser	Lys	Thr	Asn	Thr	Leu	Glu	Met	Gln	Glu	Glu	Leu	Ser	Glu	245	250	255	
Ser	Gln	Asp	Asp	Asn	Ser	Asn	Lys	Thr	Leu	Glu	Thr	Gln	Asn	Leu	Glu	260	265	270	
His	Asp	Asn	Leu	Glu	Gln	Glu	Thr	Ile	Lys	Glu	Gln	Thr	Gln	Glu	Asp	275	280	285	

Thr	Gln	Ile	Asp	Leu	Asp	Leu	Thr	Leu	Glu	Asp	Gly	Glu	Ser	Glu	Lys	290	295	300	
Glu	Asp	Leu	Ser	Gln	Glu	His	Thr	Ala	Leu	Asp	Thr	Glu	Pro	Ser	Leu	305	310	315	320
Asp	Glu	Leu	Asp	Asp	Lys	Asn	Asp	Glu	Asp	Leu	Glu	Asp	Asn	Lys	Glu	325	330	335	
Leu	Gln	Ala	Asn	Ile	Ser	Asp	Phe	Asp	Asp	Leu	Pro	Glu	Val	Glu	Glu	340	345	350	
Gln	Glu	Lys	Glu	Met	Asp	Phe	Asp	Asp	Leu	Pro	Glu	Asp	Ala	Glu	Phe	355	360	365	
Leu	Gly	Gln	Ala	Lys	Tyr	Asn	Glu	Glu	Ser	Glu	Glu	Asn	Leu	Glu	Glu	370	375	380	
Phe	Ala	Pro	Val	Val	Glu	Glu	Asp	Ile	Gln	Asp	Glu	Ile	Asp	Asp	Phe	385	390	395	400
Ala	Ser	Asn	Leu	Ser	Thr	Gln	Asp	Gln	Ile	Lys	Glu	Glu	Leu	Ala	Gln	405	410	415	
Leu	Asp	Glu	Leu	Asp	Tyr	Gly	Ile	Asp	Ser	Asp	Asn	Ser	Ser	Lys	Val	420	425	430	
Leu	Glu	Asp	Phe	Lys	Asp	Glu	Pro	Ile	Leu	Asp	Asp	Lys	Glu	Leu	Gly	435	440	445	
Thr	Asn	Glu	Glu	Glu	Val	Val	Val	Pro	Asn	Leu	Asn	Ile	Ser	Asp	Phe	450	455	460	
Asp	Thr	Leu	Lys	Glu	Ser	Asp	Ile	Gln	Glu	Ala	Leu	Gly	Glu	Glu	Ile	465	470	475	480
Leu	Glu	Lys	Asn	Glu	Glu	Pro	Ile	Val	Ser	Asp	Val	Thr	Lys	Asp	Asp	485	490	495	
Asn	Ser	Glu	Glu	Ile	Val	Asn	Glu	Leu	Ser	Gln	Ser	Ile	Ala	Gly	Ala	500	505	510	
Ile	Thr	Ser	Ser	Ile	Lys	Asp	Asp	Thr	Leu	Lys	Ala	Ala	Leu	Lys	Gly	515	520	525	
Met	Asn	Met	Asn	Ile	Asn	Ile	Asn	Ile	Ser	Phe	Lys	Glu	Asp			530	535	540	

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 <213> C. pneumoniaeCWL029

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Met Ile Gly Ala Gln Lys Lys Gln Ser Gly Lys Lys Thr Ala Ser Arg
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Ala Val Arg Lys Pro Ala Lys Lys Val Ala Ala Lys Arg Thr Val Lys
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Lys Ala Thr Val Arg Lys Thr Ala Val Lys Lys Pro Ala Val Arg Lys
35 40 45

Thr Ala Ala Lys Lys Thr Val Ala Lys Lys Thr Thr Ala Lys Arg Thr
50 55 60

Val Arg Lys Thr Val Ala Lys Lys Pro Ala Val Lys Lys Val Ala Ala
65 70 75 80

Lys Arg Val Val Lys Lys Thr Val Ala Lys Lys Thr Thr Ala Lys Arg
85 90 95

Ala Val Arg Lys Thr Val Ala Lys Lys Pro Val Ala Arg Lys Thr Thr
100 105 110

Val Ala Lys Gly Ser Pro Lys Lys Ala Ala Ala Cys Ala Leu Ala Cys
115 120 125

His Lys Asn His Lys His Thr Ser Ser Cys Lys Arg Val Cys Ser Ser
130 135 140

Thr Ala Thr Arg Lys His Gly Ser Lys Ser Arg Val Arg Thr Ala His
145 150 155 160

Gly Trp Arg His Gln Leu Ile Lys Met Met Ser Arg
165 170

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<213> C. trachomatis

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<223> hypothetical protein-possible frameshift with CT593

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<223> gi|3522902

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Met Phe Thr Leu Phe Leu Cys Glu His Leu Leu Thr Asn Ile Leu Ala
1 5 10 15

Ser Ser Phe Leu Ala Lys Ser Gln Gly Phe Ile Thr Leu Val Asn Leu
20 25 30

Phe His Lys Ile Pro Gly Leu Lys Val Ile Glu Ile Thr Cys Leu Ala
35 40 45

Leu Pro Leu Gly Ile His Ser Ile Ile Gly Phe Ser Tyr Leu Leu
50 55 60

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<213> C. trachomatis

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<223> histone like protein 2

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Met Asn Met Leu Gly Val Gln Lys Lys Cys Ser Thr Arg Lys Thr Ala
1 5 10 15

Ala Arg Lys Thr Val Val Arg Lys Pro Ala Ala Lys Lys Thr Ala Ala
20 25 30

Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys Thr Val Ala Arg
35 40 45

Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys Pro Val Ala Lys
50 55 60

Lys Ala Thr Ala Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys
65 70 75 80

Thr Val Ala Arg Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys
85 90 95

Pro Val Ala Lys Lys Ala Thr Ala Lys Lys Ala Pro Val Arg Lys Ala
100 105 110

Val Ala Lys Lys Thr Val Ala Arg Lys Thr Val Ala Lys Lys Thr Val
115 120 125

Ala Ala Arg Lys Pro Val Ala Lys Arg Val Ala Ser Thr Lys Lys Ser
130 135 140

Ser Ile Ala Val Lys Ala Gly Val Cys Met Lys Lys His Lys His Thr
145 150 155 160

Ala Ala Cys Gly Arg Val Ala Ala Ser Gly Val Lys Val Cys Ala Ser
165 170 175

Ala Ala Lys Arg Lys Thr Asn Pro Asn Arg Ser Arg Thr Ala His Ser
180 185 190

Trp Arg Gln Gln Leu Met Lys Leu Val Ala Arg
195 200

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Met Gln Asn Asn Arg Gln Lys Lys Gly Ile Asn Ala Phe Ala Ile Ser
1 5 10 15

Ile Leu Leu His Phe Ile Leu Phe Gly Leu Leu Ile Leu Ser Ser Leu
20 25 30

Tyr His Thr Val Glu Ile Met Gly Gly Gly Glu Gly Glu Gly Asp Val
35 40 45

Ile Gly Ala Val Ile Val Asp Thr Gly Thr Ala Ala Gln Glu Trp Gly
50 55 60

Arg Ile Gln Gln Gln Lys Lys Gly Gln Ala Asp Lys Gln Lys Arg Pro
65 70 75 80

Glu Pro Val Val Glu Glu Lys Pro Pro Glu Pro Asn Gln Glu Glu Ile
85 90 95

Lys His Gln Gln Glu Val Gln Arg Gln Glu Glu Leu Lys Arg Gln Gln
100 105 110

Glu	Gln	Gln	Arg	Gln	Gln	Glu	Ile	Lys	Lys	Gln	Gln	Glu	Gln	Ala	Arg
115				120				125							
Gln	Glu	Ala	Leu	Glu	Lys	Gln	Lys	Gln	Ala	Glu	Glu	Ala	Lys	Ala	Lys
130				135				140							
Gln	Ala	Ala	Glu	Ala	Ala	Lys	Leu	Lys	Ala	Asp	Ala	Glu	Ala	Lys	Arg
145				150				155				160			
Leu	Ala	Ala	Ala	Ala	Lys	Gln	Ala	Glu	Glu	Glu	Ala	Lys	Ala	Lys	Ala
165				170				175							
Ala	Glu	Ile	Ala	Ala	Gln	Lys	Ala	Lys	Gln	Glu	Ala	Glu	Ala	Lys	Ala
180				185				190							
Lys	Leu	Glu	Ala	Glu	Ala	Lys	Ala	Lys	Ala	Val	Ala	Glu	Ala	Lys	Ala
195				200				205							
Lys	Ala	Glu	Ala	Glu	Ala	Lys	Ala	Lys	Ala	Ala	Ala	Glu	Ala	Lys	Ala
210				215				220							
Lys	Ala	Asp	Ala	Glu	Ala	Lys	Ala	Ala	Thr	Glu	Ala	Lys	Arg	Lys	Ala
225				230				235				240			
Asp	Gln	Ala	Ser	Leu	Asp	Asp	Phe	Leu	Asn	Gly	Gly	Asp	Ile	Gly	Gly
245				250				255							
Gly	Ser	Ala	Ser	Lys	Gly	Gly	Asn	Thr	Asn	Lys	Gly	Gly	Thr	Gln	Gly
260				265				270							
Ser	Gly	Ala	Ala	Leu	Gly	Ser	Gly	Asp	Gly	Gly	Lys	Val	Gly	Asp	Gln
275				280				285							
Tyr	Ala	Gly	Val	Ile	Lys	Lys	Glu	Ile	Gln	Arg	Arg	Phe	Leu	Lys	Asp
290				295				300							
Pro	Asn	Phe	Ala	Gly	Lys	Val	Cys	Arg	Ile	Lys	Ile	Gln	Leu	Gly	Arg
305				310				315				320			
Asp	Gly	Thr	Ile	Leu	Gly	Tyr	Gln	Lys	Ile	Ser	Gly	Ser	Asp	Asp	Ile
325				330				335							
Cys	Ser	Ala	Ala	Leu	Ser	Ala	Val	Ala	Arg	Thr	Lys	Lys	Val	Pro	Ala
340				345				350							
Ala	Pro	Ser	Asp	Glu	Ile	Tyr	Glu	Lys	Tyr	Lys	Ser	Pro	Ile	Ile	Asp
355				360				365							
Phe	Asp	Ile	Arg												
370															

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<213> H. influenzae

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<221> misc_feature

<223> thiamin ABC transporter, permease protein, putative

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Gly Gly Val Val Val Ile Ser Phe Ile Ile Leu Phe Tyr Gly Gly Ala
20 25 30

Leu Ser Ser Ile Phe Ala Leu Gly Gly Glu Leu Gln Trp Arg Ala Trp
35 40 45

Phe Thr Asp Asp Tyr Leu Gln His Leu Ile Leu Phe Ser Phe Gly Gln
50 55 60

Ala Leu Leu Ser Thr Val Leu Ser Ile Phe Phe Gly Leu Leu Leu Ala
65 70 75 80

Arg Ala Leu Phe Tyr Lys Pro Phe Leu Gly Lys Lys Trp Leu Leu Lys
85 90 95

Leu Met Ser Leu Thr Phe Val Leu Pro Ala Leu Val Val Ile Phe Gly
100 105 110

Leu Ile Gly Ile Tyr Gly Ser Ser Gly Trp Leu Ala Trp Leu Ala Asn
115 120 125

Leu Phe Gly Met Ser Trp Gln Gly His Ile Tyr Gly Leu Ser Gly Ile
130 135 140

Leu Ile Ala His Leu Phe Phe Asn Ile Pro Leu Ala Ala Gln Leu Phe
145 150 155 160

Leu Gln Ser Leu Gln Ser Ile Pro Tyr Gln Gln Arg Gln Leu Ala Ala
165 170 175

Gln Leu Asn Leu Gln Gly Trp Gln Phe Val Lys Leu Val Glu Trp Pro
180 185 190

Val Phe Arg Gln Gln Cys Leu Pro Thr Phe Ser Leu Ile Phe Met Leu
195 200 205

Cys Phe Thr Ser Phe Thr Val Val Leu Thr Leu Gly Gly Gly Pro Gln
210 215 220

Ala Gly Ile Leu Leu Leu Leu Cys Gly Ile Leu Phe Ala Phe Ile His
 515 520 525

Thr Tyr Arg Asp Ala Asp Asp Leu Ser Lys
 530 535

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Met Ile Phe Leu Glu Ile Ile Lys Arg Glu Leu Gln Ile Ala Met Arg
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Lys Asn Ala Glu Ile Leu Asn Pro Leu Trp Phe Phe Leu Leu Val Ile
 20 25 30

Thr Leu Phe Pro Leu Val Ile Gly Pro Asp Pro Lys Leu Leu Ser Arg
 35 40 45

Ile Ala Pro Gly Ile Ala Trp Val Ala Ala Leu Leu Ser Ala Leu Leu
 50 55 60

Ser Phe Glu Arg Leu Phe Arg Asp Asp Phe Ile Asp Gly Ser Leu Glu
 65 70 75 80

Gln Leu Met Leu Thr Ala Gln Pro Leu Pro Met Thr Ala Leu Ala Lys
 85 90 95

Val Val Ala His Trp Leu Leu Thr Gly Leu Pro Leu Ile Leu Leu Ser
 100 105 110

Pro Ile Ala Ala Leu Leu Leu Ser Leu Glu Val Asn Ile Trp Trp Ala
 115 120 125

Leu Val Leu Thr Leu Leu Leu Gly Thr Pro Val Leu Ser Cys Ile Gly
 130 135 140

Ala Ile Gly Val Ala Leu Thr Val Gly Leu Arg Lys Gly Gly Val Leu
 145 150 155 160

Leu Ser Leu Leu Val Val Pro Leu Phe Ile Pro Val Leu Ile Phe Ala
 165 170 175

Ser Ser Val Leu Glu Ala Ala Gly Leu Asn Val Pro Tyr Gly Gly Gln
180 185 190

Leu Ala Ile Leu Gly Ala Met Met Val Gly Ala Val Thr Leu Ser Pro
195 200 205

Phe Ala Ile Ala Ala Ala Leu Arg Ile Ser Leu Asp Asn
210 215 220

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<223> recombination protein (rec2)

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Met Lys Leu Asn Leu Ile Thr Leu Val Val Leu Leu Ile Val Ala Asp
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Leu Thr Leu Leu Phe Leu Pro Gln Pro Leu Leu Leu Pro Trp Gln Val
20 25 30

Ala Leu Val Ile Ala Leu Val Leu Ile Phe Leu Phe Ile Phe Leu Arg
35 40 45

Arg Asn Phe Leu Val Ser Leu Ala Phe Phe Val Ala Ser Leu Gly Tyr
50 55 60

Phe His Tyr Ser Ala Leu Ser Leu Ser Gln Gln Ala Gln Asn Ile Thr
65 70 75 80

Ala Gln Lys Gln Val Val Thr Phe Lys Ile Gln Glu Ile Leu His Gln
85 90 95

Gln Asp Tyr Gln Thr Leu Ile Ala Thr Ala Thr Leu Glu Asn Asn Leu
100 105 110

Gln Glu Gln Arg Ile Phe Leu Asn Trp Lys Ala Lys Glu Val Pro Gln
115 120 125

Leu Ser Glu Ile Trp Gln Ala Glu Ile Ser Leu Arg Ser Leu Ser Ala
130 135 140

Arg Leu Asn Phe Gly Gly Phe Asp Arg Gln Gln Trp Tyr Phe Ser Lys

145		150		155		160
Gly Ile Thr Ala Val Gly Thr Val Lys Ser Ala Val Lys Ile Ala Asp						
	165			170		175
Val Ser Ser Leu Arg Ala Glu Lys Leu Gln Gln Val Lys Lys Gln Thr						
	180			185		190
Glu Gly Leu Ser Leu Gln Gly Leu Leu Ile Ala Leu Ala Phe Gly Glu						
	195			200		205
Arg Ala Trp Leu Asp Lys Thr Thr Trp Ser Ile Tyr Gln Gln Thr Asn						
	210			215		220
Thr Ala His Leu Ile Ala Ile Ser Gly Leu His Ile Gly Leu Ala Met						
	225			230		235
Gly Ile Gly Phe Cys Leu Ala Arg Val Val Gln Val Phe Phe Pro Thr						
	245			250		255
Arg Phe Ile His Pro Tyr Phe Pro Leu Val Phe Gly Val Leu Phe Ala						
	260			265		270
Leu Ile Tyr Ala Tyr Leu Ala Gly Phe Ser Val Pro Thr Phe Arg Ala						
	275			280		285
Ile Ser Ala Leu Val Phe Val Leu Phe Ile Gln Ile Met Arg Arg His						
	290			295		300
Tyr Ser Pro Ile Gln Phe Phe Thr Leu Val Val Gly Phe Leu Leu Phe						
	305			310		315
Cys Asp Pro Leu Met Pro Leu Ser Val Ser Phe Trp Leu Ser Cys Gly						
	325			330		335
Ala Val Gly Cys Leu Leu Leu Trp Tyr Arg Tyr Val Pro Phe Ser Leu						
	340			345		350
Phe Gln Trp Lys Asn Arg Pro Phe Ser Pro Lys Val Arg Trp Ile Phe						
	355			360		365
Ser Leu Phe His Leu Gln Phe Gly Leu Leu Leu Phe Phe Thr Pro Leu						
	370			375		380
Gln Leu Phe Leu Phe Asn Gly Leu Ser Leu Ser Gly Phe Leu Ala Asn						
	385			390		395
Phe Met Ala Val Pro Ile Tyr Ser Phe Leu Leu Val Pro Leu Ile Leu						
	405			410		415
Phe Ala Val Phe Thr Asn Gly Thr Met Phe Ser Trp Gln Leu Ala Asn						
	420			425		430
Lys Leu Ala Glu Gly Ile Thr Gly Leu Ile Ser Val Phe Gln Gly Asn						
	435			440		445

Trp Leu Thr Val Ser Phe Asn Leu Ala Leu Gly Leu Thr Ala Leu Cys
 450 455 460
 Ala Gly Ile Phe Met Leu Ile Ile Trp Asn Ile Tyr Arg Glu Pro Glu
 465 470 475 480
 Ile Ser Ser Ser Asn Trp Gln Ile Lys Arg Ala Lys Phe Phe Thr Leu
 485 490 495
 Asn Leu Ser Lys Pro Leu Leu Lys Asn Glu Arg Ile Asn Val Leu Arg
 500 505 510
 Cys Ser Phe Gly Ile Ile Leu Leu Cys Phe Thr Ile Leu Leu Phe Lys
 515 520 525
 Gln Leu Ser Lys Pro Thr Trp Gln Val Asp Thr Leu Asp Val Gly Gln
 530 535 540
 Gly Leu Ala Thr Leu Ile Val Lys Asn Gly Lys Gly Ile Leu Tyr Asp
 545 550 555 560
 Thr Gly Ser Ser Trp Arg Gly Gly Ser Met Ala Glu Leu Glu Ile Leu
 565 570 575
 Pro Tyr Leu Gln Arg Glu Gly Ile Val Leu Glu Lys Leu Ile Leu Ser
 580 585 590
 His Asp Asp Asn Asp His Ala Gly Gly Ala Ser Thr Ile Leu Lys Ala
 595 600 605
 Tyr Pro Asn Val Glu Leu Ile Thr Pro Ser Arg Lys Asn Tyr Gly Glu
 610 615 620
 Asn Tyr Arg Thr Phe Cys Thr Ala Gly Arg Asp Trp His Trp Gln Gly
 625 630 635 640
 Leu His Phe Gln Ile Leu Ser Pro His Asn Val Val Thr Arg Ala Asp
 645 650 655
 Asn Ser His Ser Cys Val Ile Leu Val Asp Asp Gly Lys Asn Ser Val
 660 665 670
 Leu Leu Thr Gly Asp Ala Glu Ala Lys Asn Glu Gln Ile Phe Ala Arg
 675 680 685
 Thr Leu Gly Lys Ile Asp Val Leu Gln Val Gly His His Gly Ser Lys
 690 695 700
 Thr Ser Thr Ser Glu Tyr Leu Leu Ser Gln Val Arg Pro Asp Val Ala
 705 710 715 720
 Ile Ile Ser Ser Gly Arg Trp Asn Pro Trp Lys Phe Pro His Tyr Ser
 725 730 735

Val Met Glu Arg Leu His Arg Tyr Lys Ser Ala Val Glu Asn Thr Ala
740 745 750

Val Ser Gly Gln Val Arg Val Asn Phe Phe Gln Asp Arg Leu Glu Ile
755 760 765

Gln Gln Ala Arg Thr Lys Phe Ser Pro Trp Tyr Ala Arg Val Ile Gly
770 775 780

Leu Ser Lys Glu
785

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<213> H. pylori

<220>
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<223> gi|2313421

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Met Lys Met Ile Leu Phe Asn Gln Asn Pro Met Ile Thr Lys Leu Leu
1 5 10 15

Glu Ser Val Ser Lys Lys Leu Glu Leu Pro Ile Glu Asn Phe Asn His
20 25 30

Tyr Gln Glu Leu Ser Ala Arg Leu Lys Glu Asn Gln Glu Trp Leu Leu
35 40 45

Ile Ala Asp Asp Glu Cys Leu Glu Lys Leu Asp Gln Val Asp Trp Leu
50 55 60

Glu Leu Lys Glu Thr Ile Ser Gln Asn Lys Asn Ser Val Cys Met Tyr
65 70 75 80

Lys Lys Gly Asn Glu Ala Gln Pro Phe Leu Glu Gly Phe Glu Val Lys
85 90 95

Ile Lys Lys Pro Phe Leu Pro Thr Glu Met Leu Lys Val Leu Gln Lys
100 105 110

Lys Leu Gly Ser Asn Ala Ser Glu Leu Glu Pro Ser Gln Asn Leu Asp
115 120 125

Pro Thr Gln Glu Val Leu Glu Thr Asn Trp Asp Glu Leu Glu Asn Leu
130 135 140

Gly	Asp	Leu	Glu	Ala	Leu	Val	Gln	Glu	Glu	Pro	Asn	Asn	Glu	Glu	Gln	145	150	155	160
Leu	Leu	Pro	Thr	Leu	Asn	Asp	Gln	Glu	Glu	Lys	Glu	Glu	Val	Lys	Glu	165	170	175	
Glu	Glu	Lys	Glu	Glu	Val	Lys	Glu	Glu	Glu	Lys	Glu	Glu	Val	Lys	Glu	180	185	190	
Glu	Glu	Lys	Glu	Glu	Val	Lys	Glu	Thr	Pro	Gln	Glu	Glu	Lys	Lys	Pro	195	200	205	
Lys	Asp	Asp	Glu	Thr	Gln	Glu	Gly	Glu	Thr	Leu	Lys	Asp	Lys	Glu	Val	210	215	220	
Ser	Lys	Glu	Leu	Glu	Ala	Pro	Gln	Glu	Leu	Glu	Ile	Pro	Lys	Glu	Glu	225	230	235	240
Thr	Gln	Glu	Gln	Asp	Pro	Ile	Lys	Glu	Glu	Thr	Gln	Glu	Asn	Lys	Glu	245	250	255	
Glu	Lys	Gln	Glu	Lys	Thr	Gln	Asp	Ser	Pro	Ser	Ala	Gln	Glu	Leu	Glu	260	265	270	
Ala	Met	Gln	Glu	Leu	Val	Lys	Glu	Ile	Gln	Glu	Asn	Ser	Asn	Gly	Gln	275	280	285	
Glu	Asn	Lys	Glu	Lys	Thr	Gln	Glu	Ser	Ala	Glu	Ile	Pro	Gln	Asp	Lys	290	295	300	
Glu	Ile	Gln	Glu	Val	Val	Thr	Glu	Lys	Thr	Gln	Ala	Gln	Glu	Leu	Glu	305	310	315	320
Val	Pro	Lys	Glu	Lys	Thr	Gln	Glu	Ser	Ala	Glu	Ala	Leu	Gln	Glu	Thr	325	330	335	
Gln	Ala	His	Glu	Leu	Glu	Lys	Gln	Glu	Ile	Ala	Glu	Thr	Pro	Gln	Asp	340	345	350	
Val	Glu	Ile	Pro	Gln	Ser	Gln	Asp	Lys	Glu	Val	Gln	Glu	Leu	Glu	Ile	355	360	365	
Pro	Lys	Glu	Glu	Thr	Gln	Glu	Asn	Thr	Glu	Thr	Pro	Gln	Asp	Val	Glu	370	375	380	
Thr	Pro	Gln	Glu	Lys	Glu	Thr	Gln	Glu	Asp	His	Tyr	Glu	Ser	Ile	Glu	385	390	395	400
Asp	Ile	Pro	Glu	Pro	Val	Met	Ala	Lys	Ala	Met	Gly	Glu	Glu	Leu	Pro	405	410	415	
Phe	Leu	Asn	Glu	Ala	Val	Ala	Lys	Ile	Pro	Asn	Asn	Glu	Asn	Asp	Thr	420	425	430	

Glu Thr Pro Lys Glu Ser Val Thr Glu Thr Ser Lys Asn Glu Asn Asn
 435 440 445

Thr Glu Thr Pro Gln Glu Lys Glu Glu Ser Asp Lys Thr Ser Ser Pro
 450 455 460

Leu Glu Leu Arg Leu Asn Leu Gln Asp Leu Leu Lys Ser Leu Asn Gln
 465 470 475 480

Glu Ser Leu Lys Ser Leu Leu Glu Asn Lys Thr Leu Ser Ile Lys Ile
 485 490 495

Thr Leu Glu Asp Lys Lys Pro Asn Ala
 500 505

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His Thr His His His His Tyr His Gly Gly Glu His His His His His
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His Ser Ser His His Glu Glu Gly Cys Cys Ser Thr Ser Asp Ser His
 35 40 45

His Gln Glu Glu Gly Cys Cys His Gly His His Glu
 50 55 60

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His His His His His Ala His His His His Tyr Tyr Gly Gly Glu His
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His His His Asn Ala Gln Gln His Ala Glu Gln Gln Ala Glu Gln Gln
35 40 45
Ala Gln Gln Gln Gln Gln Gln Gln Ala His Gln Gln Gln Gln Gln Lys
50 55 60
Ala Gln Gln Gln Asn Gln Gln Tyr
65 70

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Met Ala Lys Asn Lys Gln Ser Val Phe Glu Glu Lys Asn Tyr Thr Gln
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Thr Glu Pro Glu Asn Ile Phe Gly Asp Leu Tyr Asp Gly Lys Ser Thr
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Val Glu Glu Asp Pro Asn Ile Lys Val Ala Tyr Asp Ala Asp Gly Asn
35 40 45
Gly Tyr Tyr Ile Ala Phe Asn Lys Glu Thr Gly Val Tyr Tyr Asp Pro
50 55 60
Tyr Gly Asp Thr Glu Tyr Asp Ile Ser Gln Leu Phe Asp Glu Asn Gly
65 70 75 80
Asn Pro Phe Val Phe Asp Glu Lys Gln Glu Glu Asn Asp Tyr Leu Lys
85 90 95

Tyr	Val	Gly	Asn	Pro	Asp	Tyr	Gly	Ser	Tyr	Asp	Glu	Asn	Gly	Glu	Trp
			100				105						110		
Val	Trp	Ser	Gly	Tyr	Phe	Glu	Asn	Asp	Gln	Trp	Ile	Ser	Thr	Lys	Glu
			115				120						125		
Ser	Gln	Pro	Thr	Asp	Glu	Asn	Tyr	Gly	Phe	Asp	Ser	Asp	Leu	Pro	Pro
			130				135						140		
Glu	Val	Lys	Gln	Pro	Glu	Ser	Val	Glu	Asp	Asn	Tyr	Gly	Phe	Asp	Asn
			145				150						155		
Asp	Leu	Pro	Pro	Glu	Val	Lys	Gln	Pro	Glu	Ser	Val	Glu	Asp	Asn	Tyr
			165				170						175		
Gly	Phe	Asp	Asn	Asp	Leu	Pro	Pro	Glu	Val	Lys	Gln	Pro	Glu	Ser	Val
			180				185						190		
Val	Asp	Gln	Pro	Ser	Ser	Asp	Asp	Tyr	Phe	Ala	Lys	Gln	Pro	Thr	Asp
			195				200						205		
Glu	Asn	Tyr	Gly	Phe	Asp	Asn	Asp	Leu	Pro	Pro	Glu	Val	Lys	Gln	Pro
			210				215						220		
Glu	Ser	Val	Val	Asp	Gln	Pro	Ser	Ser	Asp	Asp	His	Phe	Ala	Lys	Gln
			225				230						235		
Pro	Glu	Ser	Thr	Thr	Asp	Ser	Tyr	Ser	Phe	Asp	Ser	Asp	Leu	Pro	Gln
			245				250						255		
Pro	Thr	Leu	Asp	Gln	Pro	Ser	Leu	Asp	Asp	His	Val	Gln	Tyr	Asn	Phe
			260				265						270		
Asp	His	His	Glu	Glu	Leu	Lys	Pro	Val	Ala	Glu	Glu	Gln	Asn	Asn	Tyr
			275				280						285		
Gln	Val	Gly	Phe	Asp	Gln	Val	Gln	Ala	Asn	Leu	Asp	Asn	Asn	Glu	Glu
			290				295						300		
Ile	Gln	Pro	Thr	Ala	Glu	Lys	Lys	Val	Thr	Thr	Asp	Phe	Glu	Ser	Lys
			305				310						315		
Gln	Ala	Gln	Val	Val	Asp	Ser	Tyr	Gln	Leu	Pro	Ile	Asp	Thr	Asp	Gln
			325				330						335		
Gln	Asp	Gln	Thr	Thr	Phe	Ser	Ser	Ser	Phe	Glu	Thr	Gln	Pro	Thr	Val
			340				345						350		
Glu	Gln	Phe	Asp	Gln	Val	Asn	Ser	Glu	Val	Asn	Asp	Gln	Phe	Lys	Pro
			355				360						365		
Glu	Ile	Thr	Lys	Glu	Pro	Val	Leu	Glu	Ser	Ser	Phe	Asn	Lys	Gln	Asp
			370				375						380		

Val	Val	Glu	Thr	Ser	Asp	Leu	Asn	Ser	Glu	Ser	Asn	Leu	Tyr	Ser	Glu	385	390	395	400
Asn	Asn	Lys	Asp	Ala	Thr	Asn	Asn	Asp	Ser	Leu	Asn	Ser	Glu	Phe	Ile	405	410	415	
Gln	Leu	Asn	Ser	Asn	Ser	Glu	Thr	Ala	Ser	Asp	Asp	Val	His	Tyr	Glu	420	425	430	
Ser	Lys	Ser	Glu	Pro	Ile	His	Asp	Tyr	Lys	Phe	Gly	Ser	Asp	Leu	Ser	435	440	445	
Gln	Ser	Asn	Ser	Asn	Asn	Ser	Leu	Glu	Ser	Glu	Pro	Val	Lys	Phe	Asn	450	455	460	
Ser	Glu	Thr	Ala	Pro	Asp	Ala	His	Phe	Glu	Ser	Gln	Ser	Glu	Pro	Val	465	470	475	480
Asp	Gln	Val	Gln	Tyr	Asp	Ile	Tyr	Gln	Asn	Glu	Glu	Leu	Lys	Pro	Thr	485	490	495	
Leu	Asp	Gln	Pro	Ser	Ser	Asp	Asp	Tyr	Phe	Ala	Lys	Gln	Pro	Thr	Asp	500	505	510	
Glu	Asn	Tyr	Gly	Phe	Asp	Asn	Asp	Leu	Pro	Pro	Glu	Val	Lys	Gln	Pro	515	520	525	
Glu	Ser	Val	Val	Asp	Gln	Pro	Ser	Ser	Asp	Asp	His	Phe	Ala	Lys	Gln	530	535	540	
Pro	Glu	Ser	Thr	Thr	Asp	Ser	Tyr	Ser	Phe	Asp	Ser	Asp	Leu	Pro	Gln	545	550	555	560
Pro	Thr	Leu	Asp	Gln	Pro	Ser	Leu	Asp	Asp	His	Val	Gln	Tyr	Asn	Phe	565	570	575	
Asp	His	His	Glu	Glu	Leu	Lys	Pro	Val	Ala	Glu	Glu	Gln	Asn	Asn	Tyr	580	585	590	
Gln	Val	Gly	Phe	Asp	Gln	Val	Gln	Ala	Asn	Leu	Asp	Asn	Asn	Glu	Glu	595	600	605	
Ile	Gln	Pro	Thr	Ala	Glu	Lys	Glu	Val	Thr	Thr	Asp	Phe	Glu	Ser	Lys	610	615	620	
Gln	Ala	Gln	Val	Val	Asp	Ser	Tyr	Gln	Leu	Pro	Ile	Asp	Thr	Asp	Gln	625	630	635	640
Gln	Asp	Gln	Thr	Thr	Phe	Ser	Ser	Ser	Phe	Glu	Thr	Gln	Pro	Thr	Val	645	650	655	
Glu	Gln	Phe	Asp	Gln	Val	Asn	Ser	Glu	Val	Asn	Asp	Gln	Phe	Lys	Pro	660	665	670	
Glu	Ile	Thr	Lys	Glu	Pro	Val	Leu	Glu	Ser	Ser	Phe	Asn	Lys	Gln	Asp				

Ala Ile Thr Glu Asn Glu Lys Lys Ile Glu Ser Ile Gln Gly Ser Leu
980 985 990

Lys Gln Leu Lys Thr Val Tyr Asn Ser Cys Cys Glu Thr Ile Met Asn
995 1000 1005

Asn Ile Asn Lys Leu Asp Asn Thr Leu Arg Phe Ala Lys Lys Glu
1010 1015 1020

Lys Asp Pro Leu Leu Leu Ser Asn Phe Asp Ser Val Thr Asp Asn
1025 1030 1035

Gly Leu Val Glu Pro Asn Gln Leu Met Asp Asp Leu Ile Asp Phe
1040 1045 1050

Ser Asn Thr Phe Asp Asn Ile Ser Asn Glu Gln Leu Asp Asp Phe
1055 1060 1065

Ile Tyr Glu Asn Met Asp Arg Asn Ile Asp Phe Glu Phe Glu Gly
1070 1075 1080

Phe Asn Asn Asp Phe Val Asp Ile Asp Ala Lys Val Met Asp Ser
1085 1090 1095

Met Ser Ala Phe Ser Val Asn Asp Leu Asp Ile Glu Thr Leu Val
1100 1105 1110

Pro Asp Arg Thr Ser Asn Phe Ser Ser Leu Leu Asp Glu Asp Leu
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Phe Glu Ser Ser Gly Asp Phe Ser Leu Asp Tyr
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Lys Thr Lys Lys Tyr Leu Glu Ser Ala Asn Lys Lys Ser Val Thr Lys

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Leu	Gly	Glu	Ile	Lys	Lys	Asn	Ile	Leu	Lys	Lys	Thr	Lys	Ser	Phe	Asn	
	50					55					60					
Ser	Lys	Lys	Lys	Glu	Thr	Val	Lys	Ser	Lys	Ser	Lys	Ser	Pro	Ile	Asp	
65						70					75					80
Phe	Phe	Asp	Glu	Thr	Lys	Arg	Gly	Val	Phe	Ile	Val	Pro	Pro	Glu	Thr	
				85					90					95		
Asp	Ile	Leu	Ser	Arg	Arg	Glu	Leu	Asn	Gln	Lys	Thr	Val	Val	Asn	Thr	
			100					105					110			
Val	Pro	Asn	Gln	Thr	Ser	Ser	Tyr	Pro	Thr	Ile	Asn	Glu	Asn	Lys	Leu	
		115					120					125				
Val	Glu	Leu	Asn	Asn	Gln	Pro	Glu	Thr	Lys	Val	Leu	Glu	Thr	Lys	Lys	
	130					135					140					
Asp	Ser	Phe	Thr	Thr	Thr	Ile	Arg	Glu	Lys	Lys	Leu	Asn	Pro	Glu	Asp	
145						150					155					160
Ser	Gln	Ala	Phe	Trp	Tyr	Ile	Phe	Val	Gly	Asp	Arg	Lys	Tyr	Gly	Phe	
				165					170					175		
Trp	Lys	Asn	His	Thr	Trp	Val	Trp	Leu	Gly	Tyr	Phe	Asp	Gln	Leu	Gln	
			180					185					190			
Arg	Trp	Asn	Tyr	Phe	Lys	Val	Ile	Glu	Thr	Val	Glu	Val	Pro	Gln	Glu	
		195					200					205				
His	Ala	Ala	Phe	Ile	Lys	Gln	Arg	Pro	Ala	Asp	Ile	Asp	Phe	Trp	Arg	
	210					215					220					
Pro	Leu	Val	Gly	Asn	Pro	Asn	Tyr	Gly	Phe	Val	Gln	Asn	Asn	Thr	Trp	
225						230					235					240
Ile	Trp	Lys	Gly	Phe	Phe	Asp	Lys	Lys	Leu	Asn	Trp	Ile	Pro	Asp	Pro	
				245					250					255		
Val	Arg	Phe	Thr	Glu	Glu	Ala	Leu	Gly	His	Thr	Asp	Ser	Leu	Val	Asp	
			260					265					270			
Glu	Ile	Glu	Lys	Lys	Thr	Ile	Ser	Glu	Gln	Pro	Tyr	Trp	Glu	Gln	Glu	
		275					280					285				
Asn	Asp	Ile	Val	Val	Thr	Val	Phe	Asn	Thr	Lys	Ser	Leu	Ala	Ser	Ser	
	290					295					300					
Leu	Glu	Asn	Glu	Leu	Leu	Leu	Glu	Asn	Ser	Ser	Glu	Glu	Gln	Pro	Val	
305						310					315					320

Ile	Glu	Glu	Val	Lys	Pro	Arg	Arg	Asn	Glu	Val	Ile	Phe	Arg	Asn	Pro	325	330	335	
Val	Thr	Lys	Leu	His	Phe	Glu	Lys	Glu	Lys	Phe	Glu	Phe	Leu	Asn	Pro	340	345	350	
Val	Lys	Glu	Thr	Asn	Glu	Thr	Ile	Pro	Leu	Ile	Glu	Ile	Val	Lys	Glu	355	360	365	
Glu	Val	Lys	Val	Glu	Ser	Glu	Val	Glu	Ala	Pro	Val	Glu	Ile	Glu	Pro	370	375	380	
Glu	Ala	Ala	Cys	Glu	Pro	Glu	Thr	Thr	Ile	Pro	Glu	Val	Glu	Thr	Val	385	390	395	400
Phe	Val	Tyr	Glu	Asp	Asp	Leu	Lys	Gly	Leu	Asp	Ser	Asn	Gln	Thr	Gln	405	410	415	
Ala	Gly	Asn	Val	Pro	Glu	Val	Glu	Thr	Val	Phe	Val	Tyr	Glu	Asp	Asp	420	425	430	
Leu	Lys	Gly	Leu	Asp	Ser	Ile	Ile	Lys	Asp	Asp	Gln	Gln	His	Asp	Glu	435	440	445	
Ile	Ala	Lys	His	Val	Glu	His	Leu	Ser	Gln	Asp	Tyr	Ser	Lys	Glu	Ile	450	455	460	
Lys	Asp	Ser	Ala	Lys	Ala	Asp	Leu	Ser	Asn	Ile	Ser	Asp	Asp	Ile	Asp	465	470	475	480
Ser	Val	Trp	Lys	Glu	Phe	Gly	Ser	Phe	Thr	Asp	Glu	Thr	Gln	Lys	Ser	485	490	495	
Val	Glu	Glu	Lys	Ser	Gln	Val	Asp	Glu	Ile	Ile	Leu	Asp	Ala	Asn	Asn	500	505	510	
Asp	Phe	Ile	Asn	Glu	Ser	Leu	Phe	Arg	Asp	Glu	Val	Val	Asn	Asn	Ile	515	520	525	
Asp	Ser	Gln	Ile	Asn	Glu	Thr	Val	Ser	Glu	Gln	Gln	Phe	Glu	Pro	Thr	530	535	540	
Tyr	Ser	Val	Asn	Glu	Phe	Gln	Gln	Glu	Phe	Ser	Glu	Pro	Val	Val	Ser	545	550	555	560
Asp	Glu	Lys	Ile	Lys	Glu	Thr	Asn	Ser	Asp	Glu	Ser	Val	Asn	Thr	Asp	565	570	575	
Leu	Thr	Ala	Leu	Phe	Ser	Glu	Lys	Leu	Val	Asn	Glu	Val	Leu	Leu	Thr	580	585	590	
Asn	Glu	Tyr	Val	Asp	Val	Asn	Ala	Pro	Phe	Ser	Thr	Glu	Thr	Glu	Val	595	600	605	

Lys Val Ser Ser Glu Leu Pro Lys Ser Glu Leu Val Asp Glu Ile Thr
 610 615 620
 Phe Ile Asn Asn Asp Pro Lys Pro Gln Glu Gly Leu Glu Tyr Lys Val
 625 630 635 640
 Asp Phe Leu Glu Thr Glu Pro Lys Ser Leu Phe Asp Glu Lys Thr Thr
 645 650 655
 Ile Val Val Glu Ser Glu Pro Pro Phe Ile Gln Pro Asp Leu Ser Leu
 660 665 670
 Glu Leu Asp Ser Val Asn Asp Val Asp Lys Ser Leu Glu Thr Lys Thr
 675 680 685
 Thr Ser Val Glu Leu Asn His Glu Glu Ile Gly Asn Glu Phe Ile Asn
 690 695 700
 Leu Asp Val Ser Glu Lys Glu Val Gln Glu Gln Pro Thr Thr Gln Leu
 705 710 715 720
 Glu Thr Asp Ser Glu Phe Val Leu Pro Thr Tyr Gln Ile Val Glu Asp
 725 730 735
 Ser Phe Thr Glu Ser Ala Glu Thr Pro Asn Glu Phe Ser Ser Glu Gln
 740 745 750
 Lys Asp Thr Leu Glu Phe Ile Ser Gln Thr Gln Glu Val Glu Thr Ser
 755 760 765
 Glu Ser Asn Val Pro Thr Val Glu Gln Glu Thr Lys Leu Phe Glu His
 770 775 780
 Gln Asp Glu Asn Asn Leu Phe Thr Pro Leu Pro Leu Asp Leu Thr Glu
 785 790 795 800
 Ile Ile Glu Ser Asn Ala Leu Phe Asp Ser Lys Pro Asp Glu Lys Glu
 805 810 815
 Ser Ser Asp Ser Glu Leu Gln Pro Thr Phe Lys Glu Ile Lys Leu Asp
 820 825 830
 Ser Thr Val Glu Val Pro Gln Glu Ser Ser Gln Val Glu Ala Thr Phe
 835 840 845
 Asp Thr Val Gln Pro Glu Ala Val Phe Asp Glu Ile Lys Thr Gln Glu
 850 855 860
 Leu Gln Pro Glu Ala Thr Thr Glu Val Val Phe Asp Asp His Phe Gln
 865 870 875 880
 Pro Asp Val Gln Pro Glu Gln Thr Pro Gln Glu Ala Lys Phe Asp Ser
 885 890 895
 Pro Val Glu Ile Pro Gln Glu Ser Ser Gln Ala Glu Phe His Ala Glu

900	905	910
Gln Ile Ser Asp Glu Ile Lys Leu Glu Glu Lys Thr Glu Ala Val Phe 915 920 925		
Asp His Gln Gln Leu Glu Asn Gln Ser Glu Glu Thr Val Val Thr Pro 930 935 940		
Thr Glu Val Thr Ala Phe Glu Pro Glu Thr Ile Glu Thr Gln Leu Glu 945 950 955 960		
Pro Ser Ser Glu Asp Gln Pro Ser Glu Pro Ala Leu Asp Gln Asn His 965 970 975		
Pro Glu Ile Val Thr Ala Glu Val Glu Gln Ile Phe Asp Gly Thr Lys 980 985 990		
Leu Glu Asp Leu Lys Leu Glu Glu Ala Asn Phe Asp Asn Val Glu Asn 995 1000 1005		
Asn Glu Val Gln Pro Lys Glu Thr Glu Ala Glu Ile Thr Phe Asp 1010 1015 1020		
Glu Thr Lys Glu Leu Gln Gln Glu Thr Ser Ser Glu Pro Leu Ser 1025 1030 1035		
Thr Glu Glu Leu Lys Ser Glu Ala Thr Phe Asp Asn Val Ser Glu 1040 1045 1050		
Ala Glu Ser Glu Ala Val Phe Glu Lys Pro Gln Leu Glu Thr Gln 1055 1060 1065		
Thr Glu Lys Ile Leu Glu Glu Glu Pro Lys Ser Glu Pro Val Asp 1070 1075 1080		
Gln Leu Ile Thr Glu Ala Ser Phe Asp Thr Val Lys His Glu Ala 1085 1090 1095		
Val Phe Asp Lys Asn Gln Thr Gln Thr Glu Gly Leu Glu Glu Pro 1100 1105 1110		
Gln Val Ser Ser Glu Ala Glu Val Val Asp Gln Thr Thr Thr Asp 1115 1120 1125		
Thr Val Gly Glu Pro Glu Ala Val Phe Asp Val Gln Pro Glu Lys 1130 1135 1140		
Thr Thr Glu Val Lys Phe Asp Asp Val Glu Asn Gln Gln Lys Val 1145 1150 1155		
Ile Ser Glu Pro Gln Val Glu Gln Gln Pro Gly Glu Ala Val Phe 1160 1165 1170		
Glu Pro Ser Ala Glu Ala Lys Phe Asp Ser Pro Val Glu Ser Val 1175 1180 1185		

Gln	Asp	Ser	Gln	Pro	Glu	Pro	Val	Leu	Glu	Glu	Val	Gln	Thr	Gln
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Pro	Glu	Ile	Gln	Pro	Val	Glu	Ser	Gln	Pro	Glu	Ala	Thr	Phe	Asp
1205						1210					1215			
Thr	Val	Gln	Pro	Glu	Gln	Thr	Pro	Gln	Glu	Ala	Lys	Phe	Asp	Ser
1220						1225					1230			
Pro	Val	Glu	Thr	Val	Glu	Gln	Pro	Glu	Phe	Ser	Ser	Glu	Pro	Thr
1235						1240					1245			
Gln	Gln	His	Val	Glu	Ser	Glu	Ala	Ser	Phe	Asp	Glu	Pro	Asn	Tyr
1250						1255					1260			
Asp	Phe	Asp	Glu	Pro	Asn	Tyr	Asp	Phe	Asp	Gln	Pro	Ser	Tyr	Asp
1265						1270					1275			
Ser	Asp	Leu	Gln	Pro	Ser	Glu	Pro	Gln	Tyr	Asp	Val	Asp	Glu	Pro
1280						1285					1290			
Asn	Tyr	Asp	Phe	Asp	Glu	Pro	Asn	Tyr	Glu	Ile	Glu	Ser	Lys	Pro
1295						1300					1305			
Ser	Glu	Pro	Gln	Phe	Glu	Pro	Gln	Val	Glu	Gln	Gln	Pro	Gly	Glu
1310						1315					1320			
Ala	Val	Phe	Glu	Pro	Ser	Ala	Glu	Ala	Lys	Phe	Asp	Ser	Pro	Val
1325						1330					1335			
Glu	Ser	Val	Gln	Asp	Ser	Gln	Pro	Glu	Pro	Leu	Leu	Glu	Glu	Val
1340						1345					1350			
Gln	Thr	Gln	Pro	Glu	Ile	Gln	Pro	Val	Glu	Ser	Gln	Pro	Glu	Ala
1355						1360					1365			
Thr	Phe	Asp	Thr	Val	Gln	Pro	Glu	Gln	Thr	Pro	Gln	Glu	Ala	Lys
1370						1375					1380			
Phe	Asp	Ser	Pro	Val	Glu	Thr	Ile	Gln	Glu	Pro	Gln	Val	Ser	Ser
1385						1390					1395			
Glu	Pro	Glu	Val	Val	Val	Gln	Pro	Asn	Phe	Glu	Glu	Arg	Lys	Pro
1400						1405					1410			
Glu	Thr	Val	Leu	Glu	Glu	Pro	Gln	Ala	Asp	Glu	Ile	Gln	Pro	Glu
1415						1420					1425			
Ala	Ser	Glu	Glu	Glu	Ser	Leu	Asp	Trp	Glu	Leu	Leu	Val	Gly	Asn
1430						1435					1440			
Asn	Ser	Tyr	Gly	His	Tyr	Glu	Pro	Asp	Gly	Glu	Trp	Val	Trp	Ala
1445						1450					1455			

Protein Data Bank

Gly Phe Phe Gly Asp Asp Gln Lys Trp Asn Lys Asp Ala Thr Val
1460 1465 1470

Lys Trp Ala Arg Glu Arg Asp Tyr Leu Pro Leu Ile Gly Asp Glu
1475 1480 1485

Val Tyr Gly Arg Tyr Asn Asn Lys Gly Glu Trp Ile Trp Tyr Gly
1490 1495 1500

Phe Tyr Asp Glu Ser Gly Asp Trp Val Leu Val Asp Glu Gln Trp
1505 1510 1515

Lys Asn Arg Gln Pro Arg Ile Asn Glu Ala Pro Lys Phe Trp Glu
1520 1525 1530

Lys Leu Ile Gly Asn Glu Glu Tyr Gly Tyr Tyr Glu Asp Asn Glu
1535 1540 1545

Trp Asn Trp Tyr Asp Gly Glu Phe Asp Ser Glu Gly Asn Trp Leu
1550 1555 1560

Val Phe Gln Ser Glu Glu Thr Glu Asn Leu Asn Glu Asp Ile Thr
1565 1570 1575

Lys Asp Ile Pro Ala Leu Glu Gly Tyr Asp Ile Asp Ser Ile Asp
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Val Phe Gly Ser Asn Asp Lys Lys
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Val	Gln	His	Asn	Asn	Thr	Glu	Leu	Thr	Glu	Val	Lys	Ser	Glu	Leu	Ser
	35						40				45				
Pro	Leu	Asn	Val	Val	Leu	His	Ala	Glu	Glu	Asp	Thr	Val	Gln	Ile	Gln
	50					55				60					
Gly	Lys	Pro	Ile	Thr	Glu	Gln	Ala	Trp	Phe	Ile	Pro	Thr	Val	Ala	Gly
65					70					75					80
Cys	Phe	Gly	Phe	Ser	Ala	Leu	Ala	Ile	Ile	Leu	Gly	Leu	Ala	Ile	Gly
				85					90					95	
Leu	Pro	Ile	Val	Lys	Arg	Lys	Glu	Lys	Arg	Leu	Leu	Glu	Glu	Lys	Glu
			100					105					110		
Arg	Gln	Glu	Gln	Leu	Ala	Glu	Gln	Leu	Gln	Arg	Ile	Ser	Ala	Gln	Gln
		115					120					125			
Glu	Glu	Gln	Gln	Ala	Leu	Glu	Gln	Gln	Ala	Ala	Ala	Glu	Ala	His	Ala
	130					135					140				
Glu	Ala	Glu	Val	Glu	Pro	Ala	Pro	Gln	Pro	Val	Pro	Val	Pro	Pro	Gln
145					150					155					160
Pro	Gln	Val	Gln	Ile	Asn	Phe	Gly	Pro	Arg	Thr	Gly	Phe	Pro	Pro	Gln
				165					170					175	
Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly	Met	Pro	Pro	His	Pro	Gly	Met	Ala
			180					185					190		
Pro	Arg	Pro	Gly	Phe	Pro	Pro	Gln	Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly
		195					200					205			
Met	Pro	Pro	His	Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly	Phe	Pro	Pro	Gln
	210					215					220				
Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly	Met	Pro	Pro	His	Pro	Gly	Met	Ala
225					230					235					240
Pro	Arg	Pro	Gly	Phe	Pro	Pro	Gln	Pro	Gly	Met	Ala	Pro	Arg	Pro	Gly
			245						250					255	
Met	Gln	Pro	Pro	Arg	Pro	Gly	Met	Pro	Pro	Gln	Pro	Gly	Phe	Pro	Pro
		260						265					270		

Lys Arg

<210> 18
 <211> 256
 <212> PRT
 <213> M. tuberculosis
 <220>

<221> misc_feature
<223> PE_PGRS

<220>
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<223> gi|3261822

<400> 18

Met Ile Gly Asp Gly Ala Asn Gly Gly Pro Gly Gln Pro Gly Gly Pro
1 5 10 15
Gly Gly Leu Leu Tyr Gly Asn Gly Gly His Gly Gly Ala Gly Ala Ala
20 25 30
Gly Gln Asp Arg Gly Ala Gly Asn Ser Ala Gly Leu Ile Gly Asn Gly
35 40 45
Gly Ala Gly Gly Ala Gly Gly Asn Gly Gly Ile Gly Gly Ala Gly Ala
50 55 60
Pro Gly Gly Leu Gly Gly Asp Gly Gly Lys Gly Gly Phe Ala Asp Glu
65 70 75 80
Phe Thr Gly Gly Phe Ala Gln Gly Gly Arg Gly Gly Phe Gly Gly Asn
85 90 95
Gly Asn Thr Gly Ala Ser Gly Gly Met Gly Gly Ala Gly Gly Ala Gly
100 105 110
Gly Ala Gly Gly Ala Gly Gly Leu Leu Ile Gly Asp Gly Gly Ala Gly
115 120 125
Gly Ala Gly Gly Ile Gly Gly Ala Gly Gly Val Gly Gly Gly Gly Gly
130 135 140
Ala Gly Gly Thr Gly Gly Gly Gly Val Ala Ser Ala Phe Gly Gly Gly
145 150 155 160
Asn Ala Phe Gly Gly Arg Gly Gly Asp Gly Gly Asp Gly Gly Asp Gly
165 170 175
Gly Thr Gly Gly Ala Gly Gly Ala Arg Gly Ala Gly Gly Ala Gly Gly
180 185 190
Ala Gly Gly Trp Leu Ser Gly His Ser Gly Ala His Gly Ala Met Gly
195 200 205
Ser Gly Gly Glu Gly Gly Ala Gly Gly Gly Gly Gly Ala Arg Gly Glu
210 215 220
Ala Gly Ala Gly Gly Gly Thr Ser Thr Gly Thr Asn Pro Gly Lys Ala
225 230 235 240

Gly Ala Pro Gly Thr Gln Gly Asp Ser Gly Asp Pro Gly Pro Pro Gly
 245 250 255

<210> 19
 <211> 484
 <212> PRT
 <213> M. tuberculosis

<220>
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 <223> PE_PGRS

<220>
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 <223> gi|2894254

<400> 19

Ala Gln Ala Ser Pro Ala Ala His Gly Gly Ser Gly Gly Ala Gly Gly
 1 5 10 15
 Asn Gly Gly Ala Gly Ser Ala Gly Asn Gly Gly Ala Gly Gly Ala Gly
 20 25 30
 Gly Asn Gly Gly Ala Gly Gly Asn Gly Gly Gly Gly Asp Ala Gly Asn
 35 40 45
 Ala Gly Ser Gly Gly Asn Gly Gly Lys Gly Gly Asp Gly Val Gly Pro
 50 55 60
 Gly Ser Thr Gly Gly Ala Gly Gly Lys Gly Gly Ala Gly Ala Asn Gly
 65 70 75 80
 Gly Ser Ser Asn Gly Asn Ala Arg Gly Gly Asn Ala Gly Asn Gly Gly
 85 90 95
 His Gly Gly Ala Gly Gly Ser Gly Asp Thr Gly Gly Ala Gly Gly Ala
 100 105 110
 Gly Gly Gln Gly Gly Phe Gly Gly Thr Gly Gly Ser Gly Ser Gly Ile
 115 120 125
 Gly Gly Gly Ala Gly Gly Asn Gly Gly Asn Gly Gly Ala Gly Gly Thr
 130 135 140
 Gly Val Val Leu Gly Gly Lys Gly Gly Asp Gly Gly Asn Gly Asp His
 145 150 155 160
 Gly Gly Pro Ala Thr Asn Pro Gly Ser Gly Ser Arg Gly Gly Ala Gly
 165 170 175
 Gly Ser Gly Gly Asn Gly Gly Ala Gly Gly Asn Ala Thr Gly Ser Gly

Gly	Lys	Gly	Gly	Ala	Gly	Gly	Asn	Gly	Gly	Asp	Gly	Ser	Phe	Gly	Ala
	195						200					205			
Thr	Ser	Gly	Pro	Ala	Ser	Ile	Gly	Val	Thr	Gly	Ala	Pro	Gly	Gly	Asn
	210					215					220				
Gly	Gly	Lys	Gly	Gly	Ala	Gly	Gly	Ser	Asn	Pro	Asn	Gly	Ser	Gly	Gly
225					230					235					240
Asp	Gly	Gly	Lys	Gly	Gly	Asn	Gly	Gly	Ala	Gly	Gly	Asn	Gly	Gly	Ser
				245					250						255
Ile	Gly	Ala	Asn	Ser	Gly	Ile	Val	Gly	Gly	Ser	Gly	Gly	Ala	Gly	Gly
			260					265						270	
Ala	Gly	Gly	Ala	Gly	Gly	Asn	Gly	Ser	Leu	Ser	Ser	Gly	Glu	Gly	Gly
		275					280					285			
Lys	Gly	Gly	Asp	Gly	Gly	His	Gly	Gly	Asp	Gly	Val	Gly	Gly	Asn	Ser
	290					295					300				
Ser	Val	Thr	Gln	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Gly	Ala	Gly	Gly	Ala
305					310					315					320
Gly	Gly	Ser	Gly	Phe	Phe	Gly	Gly	Lys	Gly	Gly	Phe	Gly	Gly	Asp	Gly
				325				330						335	
Gly	Gln	Gly	Gly	Pro	Asn	Gly	Gly	Gly	Thr	Val	Gly	Thr	Val	Ala	Gly
			340					345						350	
Gly	Gly	Gly	Asn	Gly	Gly	Val	Gly	Gly	Arg	Gly	Gly	Asp	Gly	Val	Phe
		355					360					365			
Ala	Gly	Ala	Gly	Gly	Gln	Gly	Gly	Leu	Gly	Gly	Gln	Gly	Gly	Asn	Gly
	370					375					380				
Gly	Gly	Ser	Thr	Gly	Gly	Asn	Gly	Gly	Leu	Gly	Gly	Ala	Gly	Gly	Gly
385					390				395						400
Gly	Gly	Asn	Ala	Pro	Asp	Gly	Gly	Phe	Gly	Gly	Asn	Gly	Gly	Lys	Gly
				405				410						415	
Gly	Gln	Gly	Gly	Ile	Gly	Gly	Gly	Thr	Gln	Ser	Ala	Thr	Gly	Leu	Gly
			420					425					430		
Gly	Asp	Gly	Gly	Asp	Gly	Gly	Asp	Gly	Gly	Asn	Gly	Gly	Asn	Ser	Gly
	435						440					445			
Ala	Lys	Ala	Gly	Gly	Ala	Gly	Gly	Lys	Gly	Gln	Ala	Gly	Gln	Pro	Asn
	450					455					460				
Ser	Gly	Thr	Glu	Pro	Gly	Phe	Gly	Gly	Asp	Gly	Gly	Leu	Gly	Gly	Ala
465					470				475						480

Gly Ala Thr Pro

<210> 20
<211> 1079
<212> PRT
<213> M. tuberculosis

<220>
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<223> PE_PGRS

<220>
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<223> gi|2924449

<400> 20

Pro Gln Gly Ala Asp Gly Asn Ala Gly Asn Gly Gly Asp Gly Gly Val
1 5 10 15
Gly Gly Asn Gly Gly Asn Gly Ala Asp Asn Thr Thr Thr Ala Ala Ala
20 25 30
Gly Thr Thr Gly Gly Ala Gly Gly Ala Gly Gly Ala Gly Gly Thr Gly
35 40 45
Gly Thr Gly Gly Ala Ala Gly Thr Gly Thr Gly Gly Gln Gln Gly Asn
50 55 60
Gly Gly Asn Gly Gly Asn Gly Gly Thr Gly Gly Lys Gly Gly Thr Gly
65 70 75 80
Gly Asp Gly Ala Leu Ala Gly Ser Ser Gly Gly Ala Gly Gly Lys Gly
85 90 95
Gly Asn Gly Gly Asp Ala Gly Lys Ala Gly Thr Gly Ser Ala Pro Gly
100 105 110
Thr Ala Gly Thr Gly Gly Asp Gly Gly Lys Gly Gly Asn Gly Gly Ile
115 120 125
Gly Ala Ala Gly Thr Thr Gly Pro Val Gly Thr Gly Ala Ser Gly Gly
130 135 140
Thr Gly Gly Ser Gly Gly Ala Gly Gly Thr Gly Gly Asp Gly Gly Ala
145 150 155 160
Ala Asn Gly Gly Thr Ala Gly Ala Gly Gly Ala Gly Gly Asn Gly Gly
165 170 175
Lys Gly Gly Asp Gly Gly Ala Gly Val Thr Ser Ser Thr Ala Gly Asn

180 185 190

Ser Gly Gly Ala Gly Gly Ser Gly Gly Lys Gly Gly Asp Ala Gly Ala
195 200 205

Gly Gly Ala Gly Ala Thr Pro Gly Ala Asn Gly Ile Ala Gly Asn Gly
210 215 220

Gly Asp Gly Gly Asp Gly Ala Ala Gly Ala Val Gly Ile Ser Gly Ala
225 230 235 240

Thr Gly Ala Gly Asp Gly Gly His Gly Gly Thr Gly Ala Ala Gly Gly
245 250 255

Asn Gly Gly Thr Gly Gly Ala Gly Gly Ser Gly Ile Asp Gly Val Gly
260 265 270

Gly Gly Thr Gly Gly Thr Gly Gly Asn Gly Gly Asn Gly Ala Ile Gly
275 280 285

Gly Ala Gly Gly Asp Ala Gly Gly Ser Gly Asn Ser Gly Gly Asn Gly
290 295 300

Gly Ile Gly Gly Lys Gly Gly Asn Ala Gly Ala Gly Gly Ala Ala Gly
305 310 315 320

Ser Asn Gly Gly Thr Val Gly Ala Asn Gly Thr Gly Gly Asp Gly Gly
325 330 335

Asn Gly Gly Ala Ala Gly Ala Ala Thr Ala Gly Ser Asn Gly Gly Ala
340 345 350

Gly Thr Gly Ser Ala Gly Gly Asn Gly Gly Thr Gly Gly Arg Gly Gly
355 360 365

Ser Gly Gly Ala Gly Gly Asp Gly Ile Gly Gly Val Gly Gly Gly Lys
370 375 380

Gly Gly Asn Gly Ala Asp Gly Glu Val Gly Gly Ala Gly Gly Ala Gly
385 390 395 400

Gly Ser Gly Pro Asn Thr Ser Pro Gly Gly Asn Gly Gly Gln Gly Gly
405 410 415

Gln Gly Gly Ser Gly Gly Ala Gly Gly Ala Ala Gly Ala Gly Gly Ala
420 425 430

Gly Gly Gly Ala Asn Gly Thr Ala Gly Asn Gly Gly Gln Gly Gly Ala
435 440 445

Gly Gly Thr Gly Gly Ala Gly Ala Ala Ser Ser Ala Thr Asn Gly Gly
450 455 460

Ser Gly Gly Ala Gly Gly Thr Gly Gly Asp Gly Gly Ser Gly Gly Ala
465 470 475 480

Gly	Gly	Thr	Gly	Gly	Ala	Gly	Gly	Thr	Gly	Gly	Ala	Ala	Gly	Asp	Gly	
				485					490					495		
Gly	Gln	Gly	Gly	Gln	Gly	Gly	Ala	Gly	Gly	Gly	Ala	Gly	Gly	Gln	Gly	
				500					505					510		
Gly	Ala	Gly	Gly	Ala	Gly	Gly	Thr	Gly	Gly	Asn	Gly	Gly	Asn	Ile	Thr	
				515					520					525		
Gly	Gly	Thr	Ala	Gly	Thr	Ala	Gly	Ala	Ala	Gly	Asn	Gly	Gly	Ala	Ala	
				530					535					540		
Gly	Lys	Gly	Gly	Ala	Gly	Gly	Gln	Gly	Gly	Thr	Gly	Gly	Gly	Thr	Gly	
				545					550					555		
Gly	Gln	Gly	Gly	Ala	Gly	Gly	Asp	Gly	Gly	Ala	Gly	Gly	Thr	Gly	Gly	
				565					570					575		
Asp	Arg	Thr	Val	Gly	Gly	Gly	Thr	Val	Pro	Ala	Gly	Ser	Gly	Gly	Gln	
				580					585					590		
Gly	Gly	Asn	Ala	Gly	Gly	Gly	Gly	Ala	Gly	Gly	Gln	Gly	Gly	Ala	Asp	
				595					600					605		
Gly	Gly	Ser	Gly	Gly	Asp	Gly	Gly	Asp	Ala	Gly	Thr	Gly	Gly	Asn	Gly	
				610					615					620		
Gly	Asn	Gly	Gly	Asn	Arg	Asn	Ser	Gly	Asn	Gly	Thr	Gly	Gly	Ala	Gly	
				625					630					635		
Gly	Asn	Gly	Gly	Gly	Gly	Ala	Asn	Gly	Gly	Ala	Gly	Gly	Ala	Gly	Gly	
				645					650					655		
Ser	Gly	Gly	Gly	Thr	Gly	Gly	Asn	Gly	Gly	Ala	Gly	Gly	Asp	Ala	Gly	
				660					665					670		
Asp	Ala	Gly	Asn	Gly	Gly	Asn	Gly	Asn	Gly	Thr	Gly	Asn	Gly	Gly	Asn	
				675					680					685		
Gly	Gly	Asn	Gly	Gly	Ile	Ala	Gly	Met	Gly	Gly	Asn	Gly	Gly	Ala	Gly	
				690					695					700		
Thr	Gly	Ser	Gly	Asn	Gly	Gly	Asn	Gly	Gly	Ser	Gly	Gly	Asn	Gly	Gly	
				705					710					715		
Asn	Ala	Gly	Met	Gly	Gly	Asn	Ser	Gly	Thr	Gly	Ser	Gly	Asp	Gly	Gly	
				725					730					735		
Ala	Gly	Gly	Asn	Gly	Gly	Ala	Ala	Gly	Thr	Gly	Gly	Thr	Gly	Gly	Asp	
				740					745					750		
Gly	Gly	Leu	Thr	Gly	Thr	Gly	Gly	Thr	Gly	Gly	Ser	Gly	Gly	Thr	Gly	
				755					760					765		

1055

1060

1065

Gly Ala Gly Gly Lys Gly Gly Ser Gly Gly Val
 1070 1075

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 <212> PRT
 <213> M. tuberculosis

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 <223> PPE

<220>
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 <223> gi|1781260

<400> 21

Met Pro Gly Arg Phe Arg Asn Phe Gly Ser Gln Asn Leu Gly Ser Gly
 1 5 10 15

Asn Ile Gly Ser Thr Asn Val Gly Ser Gly Asn Ile Gly Ser Thr Asn
 20 25 30

Val Gly Ser Gly Asn Ile Gly Asp Thr Asn Phe Gly Asn Gly Asn Asn
 35 40 45

Gly Asn Phe Asn Phe Gly Ser Gly Asn Thr Gly Ser Asn Asn Ile Gly
 50 55 60

Phe Gly Asn Thr Gly Ser Gly Asn Phe Gly Phe Gly Asn Thr Gly Asn
 65 70 75 80

Asn Asn Ile Gly Ile Gly Leu Thr Gly Asp Gly Gln Ile Gly Ile Gly
 85 90 95

Gly Leu Asn Ser Gly Ser Gly Asn Ile Gly Phe Gly Asn Ser Gly Thr
 100 105 110

Gly Asn Val Gly Leu Phe Asn Ser Gly Thr Gly Asn Val Gly Phe Gly
 115 120 125

Asn Ser Gly Thr Ala Asn Thr Gly Phe Gly Asn Ala Gly Asn Val Asn
 130 135 140

Thr Gly Phe Trp Asn Gly Gly Ser Thr Asn Thr Gly Leu Ala Asn Ala
 145 150 155 160

Gly Ala Gly Asn Thr Gly Phe Phe Asp Ala Gly Asn Tyr Asn Phe Gly
 165 170 175

Ser Leu Asn Ala Gly Asn Ile Asn Ser Ser Phe Gly Asn Ser Gly Asp
 180 185 190
 Gly Asn Ser Gly Phe Leu Asn Ala Gly Asp Val Asn Ser Gly Val Gly
 195 200 205
 Asn Ala Gly Asp Val Asn Thr Gly Leu Gly Asn Ser Gly Asn Ile Asn
 210 215 220
 Thr Gly Gly Phe Asn Pro Gly Thr Leu Asn Thr Gly Phe Phe Ser Ala
 225 230 235 240
 Met Thr Gln Ala Gly Pro Asn Ser Gly Phe Phe Asn Ala Gly Thr Gly
 245 250 255
 Asn Ser Gly Phe Gly His Asn Asp Pro Ala Gly Ser Gly Asn Ser Gly
 260 265 270
 Ile Gln Asn Ser Gly Phe Gly Asn Ser Gly Tyr Val Asn Thr Ser Thr
 275 280 285
 Thr Ser Met Phe Gly Gly Asn Ser Gly Val Leu Asn Thr Gly Tyr Gly
 290 295 300
 Asn Ser Gly Phe Tyr Asn Ala Ala Val Asn Asn Thr Gly Ile Phe Val
 305 310 315 320
 Thr Gly Val Met Ser Ser Gly Phe Phe Asn Phe Gly Thr Gly Asn Ser
 325 330 335
 Gly Leu Leu Val Ser Gly Asn Gly Leu Ser Gly Phe Phe Lys Asn Leu
 340 345 350
 Phe Gly

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 <211> 29
 <212> PRT
 <213> Pseudomonas aeruginosa

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 <223> KdpF protein

<220>
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 <223> gi|9947600

<400> 22

Met Thr Val Leu Asp Trp Leu Ser Leu Ala Leu Ala Thr Gly Leu Phe
 1 5 10 15

Val Tyr Leu Leu Val Ala Leu Leu Arg Ala Asp Arg Ala
20 25

<210> 23
<211> 352
<212> PRT
<213> Pseudomonas aeruginosa

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<223> alginate regulatory protein AlgP

<220>
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<223> gi|9951563

<400> 23

Met Ser Ala Asn Lys Lys Pro Val Thr Thr Pro Leu His Leu Leu Gln
1 5 10 15
Gln Leu Ser His Ser Leu Val Glu His Leu Glu Gly Ala Cys Lys Gln
20 25 30
Ala Leu Val Asp Ser Glu Lys Leu Leu Ala Lys Leu Glu Lys Gln Arg
35 40 45
Gly Lys Ala Gln Glu Lys Leu His Lys Ala Arg Thr Lys Leu Gln Asp
50 55 60
Ala Ala Lys Ala Gly Lys Thr Lys Ala Gln Ala Lys Ala Arg Glu Thr
65 70 75 80
Ile Ser Asp Leu Glu Glu Ala Leu Asp Thr Leu Lys Ala Arg Gln Ala
85 90 95
Asp Thr Arg Thr Tyr Ile Val Gly Leu Lys Arg Asp Val Gln Glu Ser
100 105 110
Leu Lys Leu Ala Gln Gly Val Gly Lys Val Lys Glu Ala Ala Gly Lys
115 120 125
Ala Leu Glu Ser Arg Lys Ala Lys Pro Ala Thr Lys Pro Ala Ala Lys
130 135 140
Ala Ala Ala Lys Pro Ala Val Lys Thr Val Ala Ala Lys Pro Ala Ala
145 150 155 160
Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala
165 170 175
Lys Thr Ala Ala Ala Lys Pro Ala Ala Lys Pro Thr Ala Lys Pro Ala

180	185	190
Ala Lys Pro Ala Ala Lys Pro	Ala Ala Lys Thr Ala	Ala Ala Lys Pro
195	200	205
Ala Ala Lys Pro Ala Ala Lys Pro	Val Ala Lys Pro	Ala Ala Lys Pro
210	215	220
Ala Ala Lys Thr Ala Ala Ala Lys Pro	Ala Ala Lys Pro	Ala Ala Lys
225	230	235
Pro Val Ala Lys Pro Thr Ala Lys Pro	Ala Ala Lys Thr	Ala Ala Ala
245	250	255
Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro	Ala Ala Lys Pro	Ala Ala
260	265	270
Lys Pro Val Ala Lys Ser Ala Ala Ala Lys Pro	Ala Ala Lys Pro	Ala
275	280	285
Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro	Ala Ala Lys Pro	Ala Lys Pro Val
290	295	300
Ala Ala Lys Pro Ala Ala Thr Lys Pro	Ala Thr Ala Pro	Ala Ala Lys
305	310	315
Pro Ala Ala Thr Pro Ser Ala Pro Ala Ala Ser	Ser Ser Ala Ala Ser	
325	330	335
Ala Thr Pro Ala Ala Gly Ser Asn Gly Ala Ala Pro	Thr Ser Ala Ser	
340	345	350

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 <212> PRT
 <213> Pseudomonas aeruginosa

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 <223> polyhydroxyalkanoate synthesis protein PhaF

<220>
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 <223> gi|9951352

<400> 24

Met	Ala	Gly	Lys	Lys	Lys	Ser	Glu	Lys	Glu	Ser	Ser	Trp	Ile	Gly	Glu
1				5					10					15	
Ile	Glu	Lys	Tyr	Ser	Arg	Gln	Ile	Trp	Leu	Ala	Gly	Leu	Gly	Ala	Tyr
			20					25					30		

Ser Lys Val Ser Lys Asp Gly Ser Lys Leu Phe Glu Thr Leu Val Lys
35 40 45

Asp Gly Glu Lys Ala Glu Lys Glu Ala Lys Ser Asp Val Asp Ala Gln
50 55 60

Val Gly Ala Ala Lys Ala Ser Ala Arg Ser Ala Lys Ser Lys Val Asp
65 70 75 80

Glu Val Arg Asp Arg Ala Leu Gly Lys Trp Ser Glu Leu Glu Glu Ala
85 90 95

Phe Asp Lys Arg Leu Asn Ser Ala Ile Ser Arg Leu Gly Val Pro Ser
100 105 110

Arg Asn Glu Val Lys Glu Leu His Ser Lys Val Asp Thr Leu Thr Lys
115 120 125

Gln Ile Glu Lys Leu Thr Gly Val Ser Val Lys Pro Ala Ala Lys Ala
130 135 140

Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Thr
145 150 155 160

Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Ala Ala Lys Lys
165 170 175

Pro Ala Ala Lys Pro Ala Ala Lys Lys Thr Ala Ala Lys Thr Ala Ala
180 185 190

Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Thr Ala Lys Ala Ala
195 200 205

Ala Lys Pro Ala Thr Lys Pro Ala Ala Lys Ala Ala Ala Lys Pro Ala
210 215 220

Ala Lys Pro Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro
225 230 235 240

Ala Ala Ala Thr Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro
245 250 255

Ala Ala Lys Lys Pro Ala Ala Lys Lys Pro Ala Ala Lys Pro Ala Ala
260 265 270

Ala Lys Pro Ala Ala Pro Ala Ala Ser Ser Ser Ala Pro Ala Ala Pro
275 280 285

Ala Ala Thr Pro Ala Ala Ser Ala Pro Ala Ala Asn Ala Pro Ala Thr
290 295 300

Pro Ser Ser Gln Gly
305

<210> 25

<211> 632
 <212> PRT
 <213> T. pallidum

<220>
 <221> misc_feature
 <223> dicarboxylate transporter (dctM)

<220>
 <221> misc_feature
 <223> gi|3323280

<400> 25

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Met Lys Gly Thr Arg Gly Gln Leu Val Leu Arg Ser Ile Ala Leu Leu
1          5          10          15

Leu Ile Gly Thr Leu Met Leu Leu Pro Leu Val Leu Phe Leu Ile Glu
          20          25          30

Arg Ile Phe Gly Phe Leu Thr Arg Gly Val Gly Ser Glu Val Phe Ser
          35          40          45

Ala His Glu Asp Phe Ile Phe Leu Phe Phe Ser Ser Ser Asp Ala Ala
          50          55          60

Val Ala Gln Leu Ala Phe Val Phe Ser Cys Val Ala Gly Ile Tyr Ala
65          70          75          80

Ala Arg Glu Arg Lys His Leu Ser Val Thr Leu Phe Ser Cys Asp Val
          85          90          95

Asp Arg Pro Met His Arg Val Leu Ser Phe Leu Ser Ala Ile Cys Thr
          100         105         110

Val Ala Val Leu Ser Ala Cys Phe Phe Ala Ser Gly Pro Asn Ile Val
          115         120         125

Ala Val Phe Arg Lys Glu Glu Ala Val Trp Gly Val Pro Leu Arg Trp
          130         135         140

Ile Phe Thr Ala Leu Pro Cys Met Tyr Gly Ala Leu Leu Phe His Tyr
145          150         155         160

Ala Arg Glu Val Lys Cys Arg Thr Cys Val Ile Val Gly Leu Leu Val
          165         170         175

Gly Val Leu Ile Ser Thr Gly Ser Ile Ala Ser Val Leu Phe His Leu
          180         185         190

Phe Asp Leu Thr Val Pro Leu Leu Asp Ser Val Phe His Gly Trp Val
          195         200         205

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Ala	Val	Gly	Thr	Arg	Leu	Phe	Trp	Pro	Phe	Val	Leu	Leu	Leu	Leu	Leu
210						215					220				
Leu	Ala	Ala	Gln	Gly	Leu	Pro	Leu	Phe	Ile	Thr	Leu	Leu	Ala	Ile	Ala
225					230					235					240
Tyr	Leu	Ala	Leu	Ser	Val	Asp	Gly	Gly	Tyr	Val	Asp	Thr	Leu	Pro	Leu
				245					250					255	
Glu	Gly	Tyr	Lys	Ile	Leu	Thr	Asp	Thr	Gly	Gly	Ile	Val	Ala	Val	Pro
			260					265					270		
Leu	Phe	Ala	Thr	Ala	Ser	Leu	Leu	Leu	Ala	Arg	Gly	Ser	Thr	Gly	Thr
		275					280					285			
Arg	Leu	Leu	Arg	Leu	Val	Lys	Glu	Ala	Val	Gly	Trp	Leu	Arg	Gly	Gly
	290					295					300				
Ala	Ala	Val	Ala	Cys	Val	Ala	Val	Ala	Ala	Leu	Phe	Thr	Ser	Leu	Thr
305					310					315					320
Gly	Val	Ser	Gly	Val	Thr	Ile	Leu	Ala	Leu	Gly	Ser	Leu	Phe	Lys	Leu
				325					330					335	
Ile	Leu	Thr	Gly	Asn	Lys	Tyr	Pro	Glu	His	Asp	Ala	Glu	Ala	Leu	Ile
			340					345					350		
Thr	Ser	Ser	Gly	Ala	Ile	Gly	Leu	Leu	Phe	Pro	Pro	Ser	Ala	Ala	Ile
		355					360					365			
Ile	Ile	Phe	Gly	Ala	Thr	Asn	Ile	Leu	Thr	Val	His	Ile	Val	Asp	Leu
	370					375					380				
Phe	Lys	Gly	Ala	Leu	Leu	Pro	Gly	Thr	Leu	Leu	Val	Leu	Ser	Ala	Met
385					390					395					400
Cys	Leu	Gly	Val	Ala	Lys	Asp	Arg	Thr	Gln	Val	Arg	Pro	Ser	Phe	Ser
				405					410					415	
Trp	Gln	Leu	Leu	Val	His	Ala	Val	Arg	Gly	Ser	Val	Phe	Asp	Leu	Ala
			420					425					430		
Leu	Pro	Val	Cys	Ile	Ser	Leu	Gly	Tyr	Phe	Ser	Gly	Thr	Leu	Asn	Leu
		435					440					445			
Leu	Gln	Cys	Ala	Ser	Leu	Thr	Thr	Leu	Leu	Ala	Phe	Val	Leu	Gly	Thr
	450					455					460				
Trp	Val	Arg	Arg	Asp	Phe	Thr	Val	Lys	Glu	Ala	Cys	Ala	Thr	Ala	Leu
465					470					475					480
Glu	Ser	Leu	Pro	Ile	Val	Gly	Gly	Ile	Leu	Ile	Ile	Val	Ala	Ala	Ala
				485					490					495	
Lys	Gly	Leu	Ser	Phe	Tyr	Leu	Val	Asp	Ala	Asn	Val	Pro	Asp	Thr	Leu

Gly Ala Val Leu Gly Leu Val Gly Ser Leu Met Gln Gln Leu Thr Gln
65 70 75 80

Asn Arg Leu Thr Ser Pro Leu Thr Leu Gly Thr Ser Ser Gly Ala Trp
85 90 95

Leu Gly Leu Ile Ile Val Asn Ile Trp Phe Ser Asp Trp Val Ala Asp
100 105 110

Tyr Ser Ala Leu Ala Ala Met Ala Gly Ala Leu Leu Ala Phe Ala Leu
115 120 125

Ile Ile Ser Ile Ala Gly Leu Arg Asn Leu Thr Gly Leu Pro Leu Val
130 135 140

Val Ser Gly Met Val Val Asn Ile Leu Leu Gly Ser Ile Ala Thr Ala
145 150 155 160

Leu Val Leu Leu Asn Glu Glu Phe Ala Gln Asn Val Phe Met Trp Gly
165 170 175

Ala Gly Asp Leu Ala Gln Asn Gly Trp Glu Trp Leu Thr Trp Leu Leu
180 185 190

Pro Arg Leu Ala Leu Val Phe Pro Leu Leu Leu Phe Ala Pro Arg Val
195 200 205

Leu Thr Leu Leu Arg Leu Gly His Glu Gly Ala Ala Ala Arg Gly Leu
210 215 220

Ala Val Leu Pro Ala Phe Leu Phe Leu Met Ala Gly Gly Ile Trp Leu
225 230 235 240

Val Ser Ala Ser Ile Thr Ala Val Gly Val Ile Gly Phe Ile Gly Leu
245 250 255

Leu Thr Pro Asn Ile Ala Arg Ser Leu Gly Ala Arg Thr Thr Lys Met
260 265 270

Glu Leu Tyr Ser Ser Ala Leu Leu Gly Ala Leu Leu Leu Leu Ala Thr
275 280 285

Asp Met Leu Ala Met Gly Leu Ser Val Trp Ala Glu Glu Val Val Pro
290 295 300

Ser Gly Ile Thr Ala Ala Val Ile Gly Ala Pro Ala Leu Ile Trp Phe
305 310 315 320

Ser Arg Arg Gln Leu Gln Ala Gln Asp Ser Leu Ser Ile Ser Leu Ser
325 330 335

Ser His Arg Arg Ser Pro Ser Arg Trp Ala Val Met Leu Ile Ala Ala
340 345 350

Ala Leu Leu Leu Ala Leu Ser Leu His Ile Gly Trp Gln Met Glu Ser

355	360	365
Ala Ser Trp Ala Leu Pro Ser Glu Phe Gln Trp Pro Leu Arg Trp Pro		
370	375	380
Arg Met Leu Thr Ala Leu Phe Ala Gly Val Gly Leu Ala Ile Ala Gly		
385	390	395 400
Thr Leu Leu Gln Arg Leu Ile Tyr Asn Pro Leu Ala Ser Pro Asp Ile		
	405	410 415
Leu Gly Val Ser Ser Gly Ala Thr Phe Ala Leu Val Phe Ala Ser Leu		
	420	425 430
Phe Leu Gly Gln Ser Leu Gln Ser Thr His Trp Met Thr Ala Leu Leu		
	435	440 445
Gly Ser Ala Ala Val Leu Val Ala Leu Leu Leu Leu Gly Arg Arg His		
	450	455 460
His Tyr Ala Pro Ser Ser Leu Ile Leu Thr Gly Ile Ala Ile Thr Ala		
465	470	475 480
Leu Leu Glu Ala Leu Val Gln Phe Thr Leu Ala Lys Gly Thr Gly Asp		
	485	490 495
Ser Tyr Gln Ile Leu Leu Trp Leu Ser Gly Ser Thr Tyr Arg Ala Thr		
	500	505 510
Gly Glu Gln Ala Leu Leu Leu Ser Val Gly Val Val Gly Leu Thr Leu		
	515	520 525
Leu Ala Leu Gly Leu Ser Arg Trp Leu Thr Leu Ile Ser Ile Gly Arg		
	530	535 540
Gly Phe Ala Ser Ala Arg Gly Leu Ser Ala Ser Arg Ala Ser Leu Val		
545	550	555 560
Leu Leu Ile Leu Val Ala Leu Leu Cys Ala Leu Val Thr Ala Thr Met		
	565	570 575
Gly Pro Val Ser Phe Val Gly Leu Ile Ala Pro His Met Ala Met Met		
	580	585 590
Leu Gly Ala Gln Arg Ala Pro Ser Gln Leu Leu Leu Ala Ala Leu Val		
	595	600 605
Gly Gly Thr Leu Met Leu Trp Ala Asp Trp Leu Gly Gln Ala Leu Leu		
	610	615 620
Phe Pro Ala Gln Ile Ala Ala Gly Thr Leu Val Ala Ile Ile Gly Gly		
625	630	635 640
Ser Tyr Phe Leu Leu Leu Leu Leu Ser Gln Arg Ala Arg		
	645	650

<210> 27
 <211> 356
 <212> PRT
 <213> Vibrio cholerae

<220>
 <221> misc_feature
 <223> tolA protein

<220>
 <221> misc_feature
 <223> gi|9656364

<400> 27

Met Lys Glu Asn Lys Ser Arg Lys Ser Asn Asp Ala Lys Ser Ile Thr
 1 5 10 15

Ile Ser Leu Ala Met His Gly Ala Leu Val Ala Ile Leu Leu Trp Gly
 20 25 30

Ala Asp Phe Thr Met Ser Asp Pro Glu Pro Thr Gly Gln Met Ile Glu
 35 40 45

Ala Val Val Ile Asp Pro Gln Leu Val Arg Gln Gln Ala Gln Gln Ile
 50 55 60

Arg Ser Gln Arg Glu Glu Ala Ala Lys Lys Glu Gln Glu Arg Leu Asp
 65 70 75 80

Lys Leu Arg Arg Glu Ser Glu Gln Leu Glu Lys Asn Arg Gln Ala Glu
 85 90 95

Glu Glu Arg Ile Arg Gln Leu Lys Glu Gln Gln Ala Lys Glu Ala Lys
 100 105 110

Ala Ala Arg Glu Ala Glu Lys Leu Arg Glu Gln Lys Glu Gln Glu Arg
 115 120 125

Leu Ala Ala Glu Gln Lys Ala Arg Glu Glu Lys Glu Arg Ala Ala Lys
 130 135 140

Ala Glu Ala Glu Arg Lys Val Lys Glu Glu Ala Ala Lys Lys Ala Glu
 145 150 155 160

Gln Glu Arg Val Ala Lys Glu Ala Ala Ala Ala Lys Ala Glu Gln Gln
 165 170 175

Arg Ile Glu Arg Glu Lys Glu Ala Lys Leu Ala Glu Glu Lys Ala Lys
 180 185 190

Arg Glu Lys Glu Val Ala Ala Lys Ala Glu Gln Glu Arg Leu Ala Lys

Leu Val Gln Gln Asn Asp Gly Asp Val Gln Lys Lys Ser Glu Asp Gly
 35 40 45

Asp Asn Val Gly Glu Gly Gly Lys Gly Asn Glu Asp Gly Asn Asp Asp
 50 55 60

Gln Pro Lys Glu His Ala Ala Gly Asn
 65 70

<210> 29
 <211> 177
 <212> PRT
 <213> L. major

<220>
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 <223> hydrophilic surface protein

<220>
 <221> misc_feature
 <223> gi|468328

<400> 29

Met Gly Ser Ser Cys Thr Lys Asp Ser Ala Lys Glu Pro Gln Lys Ser
 1 5 10 15

Ala Asp Lys Ile Lys Ser Thr Asn Glu Thr Asn Gln Gly Gly Asn Ala
 20 25 30

Ser Gly Ser Arg Lys Ser Ala Gly Gly Arg Ala Asn Glu Tyr Asp Pro
 35 40 45

Lys Asp Asp Gly Phe Thr Pro Asn Asn Glu Asp Arg Cys Pro Lys Glu
 50 55 60

Asp Gly His Ala Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly
 65 70 75 80

His Ala Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala
 85 90 95

Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys
 100 105 110

Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys Asn Asp
 115 120 125

Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys Asn Asp Gly Asp
 130 135 140

Val Gln Lys Lys Ser Glu Asp Gly Asp Asn Val Gly Glu Gly Gly Lys
 145 150 155 160

Gly Asn Glu Asp Gly Asn Asp Asp Gln Pro Lys Glu His Ala Ala Gly
165 170 175

Asn

<210> 30
<211> 106
<212> PRT
<213> Plasmodium falciparum

<220>
<221> misc_feature
<223> predicted integral membrane protein

<220>
<221> misc_feature
<223> gi|3845179

<400> 30

Met Tyr Ile Cys Phe Phe Phe Phe Phe Phe Phe Leu Val Ile Lys Leu
1 5 10 15

Gly Glu Asp Glu Asn Phe Gly Ser Ser Cys Phe Tyr Ser Leu Gly Asn
20 25 30

Thr Lys Ile Leu Thr Thr Val Tyr Gly Pro Asn Pro Asp Ser Lys Tyr
35 40 45

Ala Thr Tyr Ser Lys Gly Lys Val Phe Leu Asp Val Lys Ser Leu Asn
50 55 60

Ile Asn Thr Ile Gly Ala Ser Asp Arg Val Leu Tyr Ile Tyr Gly Phe
65 70 75 80

Phe Phe Phe Phe Phe Phe Phe Phe Phe Phe Ile Leu Asn Arg Ser Tyr
85 90 95

Phe Phe Leu Val Leu Phe Ile Ile Phe Ile
100 105

<210> 31
<211> 396
<212> PRT
<213> Plasmodium falciparum

<220>
<221> misc_feature
<223> Circumsporozoite (CS) protein

<220>
<221> misc_feature
<223> gi|4493889

<400> 31

Met Arg Lys Leu Ala Ile Leu Ser Val Ser Ser Phe Leu Phe Val Glu
1 5 10 15

Ala Leu Phe Gln Glu Tyr Gln Cys Tyr Gly Ser Ser Ser Asn Thr Arg
20 25 30

Val Leu Asn Glu Leu Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn
35 40 45

Glu Leu Glu Met Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu
50 55 60

Lys Lys Asn Ser Arg Ser Leu Gly Glu Asn Asp Asp Gly Asn Asn Glu
65 70 75 80

Asp Asn Glu Lys Leu Arg Lys Pro Lys His Lys Lys Leu Lys Gln Pro
85 90 95

Ala Asp Gly Asn Pro Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn
100 105 110

Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn
115 120 125

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
130 135 140

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
145 150 155 160

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
165 170 175

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
180 185 190

Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
195 200 205

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
210 215 220

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
225 230 235 240

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
245 250 255

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
260 265 270

Lys Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp Pro
275 280 285

Asn Arg Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys Asn
290 295 300

Asn Asn Asn Glu Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu Asn
305 310 315 320

Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
325 330 335

Cys Gly Asn Gly Ile Gln Val Arg Ile Lys Pro Gly Ser Ala Asn Lys
340 345 350

Pro Lys Asp Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys Ile Cys
355 360 365

Lys Met Glu Lys Cys Ser Ser Val Phe Asn Val Val Asn Ser Ser Ile
370 375 380

Gly Leu Ile Met Val Leu Ser Phe Leu Phe Leu Asn
385 390 395

<210> 32
<211> 497
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0553

<220>
<221> misc_feature
<223> "Xaa" may be any amino acid

<220>
<221> misc_feature
<223> gi|2688482

<400> 32

Met Asn Lys Thr Lys Asn Arg Ser Leu Thr Tyr Phe Ile Ile Leu Ser
1 5 10 15

Cys Ile Ser Leu Phe Gly Ala Asn Asn Asn Thr Ile Ser Tyr Ser Ser
20 25 30

Ile	Glu	Ile	Pro	Leu	Glu	Asp	Leu	Ser	Glu	Glu	Phe	Lys	Ser	Ser	Gly	35	40	45
Asn	Lys	Ser	Asp	Gln	Ile	Asn	Thr	Ser	Lys	His	Leu	Asn	Lys	Asn	Ile	50	55	60
Val	Ser	Tyr	Glu	Asp	Pro	Lys	Lys	Gly	Lys	Asp	Leu	Lys	Leu	Pro	Glu	65	70	75
Asn	Ile	Arg	Asp	Lys	Lys	Leu	Pro	Gln	Lys	Arg	Met	Asp	Glu	Asn	Asp	85	90	95
Leu	Lys	Ser	Val	Ile	Glu	Asn	Tyr	Glu	Asn	Lys	Ile	Lys	Asn	Ile	Glu	100	105	110
Lys	Leu	Leu	Lys	Thr	Lys	Asn	Gln	Lys	Thr	Ser	Glu	Asn	Glu	Asn	Lys	115	120	125
Lys	Ile	Glu	Ser	Ile	Glu	Lys	Lys	Ala	Lys	Lys	Tyr	Glu	Ile	Leu	Thr	130	135	140
Asn	Lys	Leu	Lys	Asn	Glu	Ile	Val	Glu	Ile	Lys	Lys	Leu	Leu	Asn	Lys	145	150	155
Lys	Ile	Lys	Pro	Lys	Glu	Asp	Glu	Asn	Tyr	Glu	Lys	Ile	Asn	Ile	Glu	165	170	175
Asn	Ile	Glu	Glu	Glu	Thr	Asp	Asp	Asp	Phe	Glu	Asp	Asn	Tyr	Glu	Tyr	180	185	190
Asn	Asp	Glu	Ile	Glu	Xaa	Thr	Asn	Glu	Asp	Asn	Tyr	Pro	Ser	Asn	Glu	195	200	205
Gly	Ile	Ile	Asn	Asn	Leu	Lys	Glu	Asn	Leu	Asn	Glu	Asn	Glu	Lys	Tyr	210	215	220
Tyr	Ala	Ile	Asn	Glu	Lys	Lys	Ile	Asp	Glu	Leu	Glu	Asp	Arg	Ile	Asn	225	230	235
Glu	Asn	Glu	Asn	Thr	Ile	Leu	Asp	Leu	Gln	Arg	Glu	Leu	Arg	Asn	Phe	245	250	255
Lys	Lys	Lys	Asp	Asn	Ser	Asp	Lys	Asn	Leu	Glu	Glu	Ile	Glu	Glu	Asn	260	265	270
Leu	Ser	Ser	Ile	Gly	Arg	Ile	Ile	Asn	Asp	Leu	Lys	Arg	Lys	Ile	Ser	275	280	285
Ala	Asn	Glu	Ala	Ile	Asn	Lys	Glu	Asn	Gln	Lys	Lys	Ile	Arg	Thr	Asp	290	295	300
Lys	His	Lys	Leu	Lys	Glu	Leu	Glu	Asp	Lys	Ile	Lys	Glu	Asn	Glu	Glu	305	310	315
Thr	Ile	Leu	Lys	Leu	Gln	Lys	Glu	Leu	Asn	Asn	Phe	Lys	Lys	Lys	Glu			

Protein = "P43333"

				325						330							335
Ile	Tyr	Gln	Lys	Pro	Leu	Asn	Glu	Glu	Thr	Phe	Thr	Pro	Ser	Ile	Thr		
			340						345				350				
Ser	Lys	Asn	Asp	Asp	Leu	Glu	Glu	Asn	Lys	Lys	Leu	Lys	Lys	Glu	Tyr		
		355					360					365					
Leu	Lys	Pro	Ile	Glu	Lys	Lys	Glu	Ser	Arg	Asp	Leu	Glu	Glu	Asn	Thr		
		370				375					380						
Lys	Ser	Thr	Pro	Lys	Thr	Thr	Met	Ile	Lys	Thr	Ala	Asp	Phe	Gln	Ile		
385					390					395					400		
Tyr	Pro	Asp	Ile	Tyr	Leu	Asn	Asn	Tyr	Lys	Phe	Lys	Glu	Lys	Gly	Asp		
				405					410					415			
Gln	Phe	Ala	Phe	Lys	Lys	Glu	Asn	Thr	Tyr	Tyr	Ile	Glu	Ile	Asp	Pro		
			420					425					430				
Thr	Asn	Asn	Leu	Asn	Glu	Ala	Leu	Lys	Asn	His	Glu	Ile	Ile	Ser	Lys		
			435				440					445					
Tyr	Lys	Phe	Glu	Lys	Tyr	Phe	Ile	Asn	Pro	Ile	Leu	Lys	Asn	Lys	Glu		
	450					455					460						
Glu	Phe	Phe	Arg	Asn	Leu	Ile	Glu	Val	Lys	Asn	Ile	His	Glu	Leu	Gly		
465					470				475						480		
Ile	Met	Tyr	Lys	Asn	Leu	Lys	Pro	Glu	Phe	Lys	Gln	Ile	Lys	Ile	Ile		
				485					490					495			

Lys

<210> 33
<211> 31
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0148

<220>
<221> misc_feature
<223> gi|2688046

<400> 33

Met Pro Val Lys Lys Asn Ser Thr Lys Ile Lys Lys Lys Glu Thr Gln
1 5 10 15

Ile Ala Ile Ala Leu Lys Ile Ile Ile Ile Ile Tyr Phe Phe Asp
 20 25 30

<210> 34
 <211> 30
 <212> PRT
 <213> B. burgdorferi

<220>
 <221> misc_feature
 <223> predicted coding region BB0150

<220>
 <221> misc_feature
 <223> gi|2688045

<400> 34

Met Phe Gly Cys Leu Arg Ile His Val Phe Lys Ile Tyr Phe Ile Phe
 1 5 10 15

Leu Ile Ile His Tyr Ile Leu Phe Ser Ile Leu Leu Met Ile
 20 25 30

<210> 35
 <211> 344
 <212> PRT
 <213> B. burgdorferi

<220>
 <221> misc_feature
 <223> predicted coding region BB0212

<220>
 <221> misc_feature
 <223> gi|2688103

<400> 35

Met Met Lys Lys Ile Lys Ser Glu Ile Asn Leu Leu Lys Ile Glu Lys
 1 5 10 15

Asp Lys Asn Leu Ile Glu Leu Gly Lys Ile Leu Lys Asn Asn Asn Ile
 20 25 30

Val Glu Leu Lys Asn Leu Asn His Tyr Pro Asn Leu Lys Leu Val Glu
 35 40 45

Lys Glu Leu Tyr Gln Met Lys Ser Asn Leu Ser Lys Ser Glu Glu Asn
 50 55 60

Glu Asn Ile Leu Lys Asn Leu Asn Lys Lys Ile Tyr Ile Leu Lys Lys
65 70 75 80

Glu Tyr Lys Ser Thr Ser Lys Ser Tyr Lys Lys Asn Leu Lys Glu Ile
85 90 95

Ala Lys Thr Ile Ile Glu Ile Tyr Pro Gln Asn Leu Glu Leu Ile Ser
100 105 110

Lys Tyr Asn Met Asn Phe Ser Lys Leu Lys Leu Glu Lys Tyr Lys Lys
115 120 125

Ile Glu Leu Ala Ser Asp His Lys Thr Lys Asn Tyr Leu Gln Arg Ile
130 135 140

Met Leu Glu Val Ser Ser Thr Ile Asn Asn Ile Ile Asn Met Ile Asn
145 150 155 160

Val Tyr Lys Ile Ser Lys Glu Phe Glu Lys Gln Val Phe Thr Lys Tyr
165 170 175

Tyr Pro Ser Glu Asn Phe Glu Ser Ile Met Asn Glu Phe Ser Leu Asn
180 185 190

Lys Lys Leu Asn Asn Val Ile Val Lys Glu Phe Lys Ile Ile Asn Glu
195 200 205

Ile Lys Thr Asn Ile Lys Asn Ile Lys Glu Glu Ile Lys Glu Ile Ile
210 215 220

Ser Thr Ser Lys Lys Glu Lys Ile Tyr Lys Lys Asn Thr Ile Lys Asn
225 230 235 240

Glu Ile Asn Val Ile Thr Lys Asn Lys Glu Asn Ile Leu Lys Lys Ile
245 250 255

Ala Glu Glu Phe Ile Glu Ile Thr Lys Lys Asp Lys Met Thr Ala Lys
260 265 270

Thr Asn Ala Ile Ser Ser Ile Ile Gln Lys Ile Glu Lys Ile Asn Gln
275 280 285

Lys Ile Leu Asn Leu Asn Asn Asp Leu Ile Lys Ile Thr Lys Gln Glu
290 295 300

Glu Ile Lys Asn Ile Gln Gln Lys Ile Gln Ala Leu Thr Lys Glu Lys
305 310 315 320

Asn Lys Ile Asn Asn Lys Leu Asp Ala Leu Thr Ser Lys Ile Glu Val
325 330 335

Ile Gln Asn Glu Leu Asp Asn Glu
340

<210> 36

<211> 30
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0425

<220>
<221> misc_feature
<223> gi|2688333

<400> 36

Met Glu Asp Glu Arg Arg Glu Glu Leu Ser Lys Val Lys Ser Gln Lys
1 5 10 15

Asn Lys Gln Asn Leu Leu Ile Phe Leu Asn Lys Lys Ile Lys
20 25 30

<210> 37
<211> 32
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0433

<220>
<221> misc_feature
<223> gi|2688343

<400> 37

Met His Lys Phe Phe Lys Leu Ile Leu Lys Leu Phe Ser Phe Tyr Lys
1 5 10 15

Glu Ile Leu Gly Phe Lys Arg Arg Ala Lys Phe Ile Phe Cys Tyr Leu
20 25 30

<210> 38
<211> 38
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0520

<220>
<221> misc_feature
<223> gi|2688447

<400> 38

Met Ser Lys Ser Thr Lys Asn Thr Thr Lys Ser Lys Asn Asp Thr Lys
1 5 10 15

Asn Ile Leu Ile Asn Lys Lys Ile Lys Phe Phe Ile Leu Thr Lys Lys
20 25 30

Tyr Thr Arg Thr Phe Tyr
35

<210> 39
<211> 36
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0609

<220>
<221> misc_feature
<223> gi|2688540

<400> 39

Met Thr Met Ile Ile Ile Ile Phe Tyr Lys Tyr Leu Ile Pro Lys Ser
1 5 10 15

Ile Lys Asp Lys Asn Asn Lys Ser His Lys Thr Phe Ile Lys Lys Phe
20 25 30

Ile Ile Lys Tyr
35

<210> 40
<211> 31
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0822

<220>
<221> misc_feature
<223> gi|2688768

<400> 40

Met Pro Cys Gly Arg Lys Arg Lys Leu Lys Lys Ile Ser Thr His Lys
1 5 10 15

Arg Lys Lys Lys Arg Arg Lys Asn Arg His Lys Lys Lys Asn Lys
20 25 30

<210> 41

<211> 34

<212> PRT

<213> B. burgdorferi

<220>

<221> misc_feature

<223> predicted coding region BB0848

<220>

<221> misc_feature

<223> gi|2688793

<400> 41

Met Tyr Phe Cys Ile Ile Asp Leu Glu Phe Val Gly Val Leu Pro Tyr
1 5 10 15

Phe Phe Ile Tyr Lys Phe Gly Glu Phe Tyr Phe Ser Phe Phe Gly Lys
20 25 30

Trp Arg

<210> 42

<211> 51

<212> PRT

<213> C. jejuni

<220>

<221> misc_feature

<223> highly acidic protein

<220>

<221> misc_feature

<223> gi|6967728

<400> 42

Met Ala Tyr Glu Asp Glu Glu Asp Leu Asn Tyr Asp Asp Tyr Glu Asn
1 5 10 15

Glu Asp Glu Glu Tyr Pro Gln Asn His His Lys Asn Tyr Asn Tyr Asp
 20 25 30

Asp Asp Asp Tyr Glu Tyr Asp Asp Asp Asn Asn Asp Asp Asp Phe Tyr
 35 40 45

Glu Met Asp
 50

<210> 43
 <211> 41
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> hypothetical protein Cj0344

<220>
 <221> misc_feature
 <223> gi|6967819

<400> 43

Met Phe Gln Asn Ile Ile Lys Tyr Lys Asp Phe Ile Ile Phe Ile Leu
 1 5 10 15

Asn Leu Lys Gln Asn Leu Tyr Leu Leu Ile Lys Ile Asn Leu Asp Phe
 20 25 30

Lys Asn Phe His Lys Ser Leu Asn Phe
 35 40

<210> 44
 <211> 37
 <212> PRT
 <213> C. jejuni

<220>
 <221> misc_feature
 <223> hypothetical protein Cj0567

<220>
 <221> misc_feature
 <223> gi|6968034

<400> 44

Met Asp Lys Ile Gln Glu Asn Thr Lys Ile Glu Lys Ala Ile Leu Ala
 1 5 10 15

Glu Lys Gln Gln Ile Phe Leu Ile Gln Asn Lys Leu Ser Glu Ile Glu
 20 25 30

Lys Asn Ile Lys Glu
 35

<210> 45

<211> 74

<212> PRT

<213> C. jejuni

<220>

<221> misc_feature

<223> small hydrophobic protein

<220>

<221> misc_feature

<223> gi|6968265

<400> 45

Met Leu Glu Phe Ile Phe Thr Leu Ile Leu Asp Phe Thr Phe Tyr Ser
 1 5 10 15

Ile Lys Thr Leu Glu Lys Val Phe Leu Gly Arg Thr Ala Leu Val Ile
 20 25 30

Leu Phe Val Val Phe Ile Ala Leu Phe Cys Val Lys Gly Leu Phe Leu
 35 40 45

Tyr Ile Leu Leu Ala Leu Glu Leu Phe Leu Leu Leu Tyr Leu Phe Leu
 50 55 60

Gly Ile Leu Phe Leu Arg Phe Tyr Lys Ser
 65 70

<210> 46

<211> 46

<212> PRT

<213> C. jejuni

<220>

<221> misc_feature

<223> very hypothetical protein Cj0974

<220>

<221> misc_feature

<223> gi|6968409

<400> 46

Met Leu Lys Met Ile Lys Ile Gln Lys Val Lys Ser Leu Leu Asp Leu
1 5 10 15

Val Lys Lys Leu Lys Asn Lys Gln Ser Leu Lys Ile Lys Asn Gln Thr
20 25 30

Asn Thr Lys Glu Asn Leu Asn Lys Thr His Tyr Leu Thr Ile
35 40 45

<210> 47

<211> 78

<212> PRT

<213> C. jejuni

<220>

<221> misc_feature

<223> very hypothetical protein

<220>

<221> misc_feature

<223> gi|6968423

<400> 47

Met Leu Lys Ile Pro Tyr Phe Ser Phe Leu Lys Leu Asp Phe Glu Ile
1 5 10 15

Tyr His Leu Asn Thr Ser Lys Asn Phe Tyr Gly Phe Phe Ile Leu Tyr
20 25 30

Phe Ser Phe Phe Ile Phe Lys Leu Ile Tyr Lys Phe Ser Lys Ser Asn
35 40 45

Lys Lys Ile Tyr Lys Lys Ile Ile Lys Leu Lys Lys Ile Ile Lys Asp
50 55 60

Asn Lys Tyr Leu Ile Phe Leu Cys Tyr Ile Leu Ile Asn Ile
65 70 75

<210> 48

<211> 30

<212> PRT

<213> C. jejuni

<220>

<221> misc_feature

<223> hypothetical protein Cj0748

<220>

<221> misc_feature

<223> gi|6968200

<400> 48

Met Leu Glu Thr Leu Lys Lys Tyr Ala Glu Asn Gln Gly Ile Glu Asp
1 5 10 15

Asn Tyr Pro Lys Lys Ile Tyr Asn Gln Lys Glu Lys Lys Pro
20 25 30

<210> 49

<211> 168

<212> PRT

<213> C. pneumoniae CWL029

<220>

<221> misc_feature

<223> CT670 hypothetical protein

<220>

<221> misc_feature

<223> gi|4377009

<400> 49

Met Ala Lys Tyr Pro Leu Glu Pro Val Leu Ala Ile Lys Lys Asp Arg
1 5 10 15

Val Asp Arg Ala Glu Lys Val Val Lys Glu Lys Arg Arg Leu Leu Glu
20 25 30

Ile Glu Gln Glu Lys Leu Arg Glu Lys Glu Ala Glu Arg Asp Lys Val
35 40 45

Lys Asn His Tyr Met Gln Lys Ile Gln Gln Leu Arg Asp Leu Leu Asp
50 55 60

Glu Gly Thr Thr Ser Asp Ala Val Leu Gln Ile Lys Ser Tyr Ile Lys
65 70 75 80

Val Val Ala Val Gln Leu Ser Glu Glu Glu Glu Lys Val Asn Lys Gln
85 90 95

Lys Glu Val Val Leu Ala Ala Ser Lys Glu Leu Glu Lys Ala Glu Val
100 105 110

Asn Leu Ala Lys Arg Arg Lys Glu Glu Glu Lys Thr Arg Leu His Lys
115 120 125

Glu Glu Trp Met Lys Glu Ala Leu Lys Glu Glu Ala Arg Ala Glu Glu
130 135 140

Lys Glu Gln Asp Glu Met Gly Gln Leu Leu Phe Gln Leu Arg Gln Lys

145 150 155 160

Lys Lys Arg Glu Ser Gly Gly Ser
165

<210> 50

<211> 444

<212> PRT

<213> C. pneumoniae CWL029

<220>

<221> misc_feature

<223> CT579 hypothetical protein

<220>

<221> misc_feature

<223> gi|4377120

<400> 50

Met Thr Ser Gly Val Ser Gly Ser Ser Ser Gln Asp Pro Thr Leu Ala
1 5 10 15

Ala Gln Leu Ala Gln Ser Ser Gln Lys Ala Gly Asn Ala Gln Ser Gly
20 25 30

His Asp Thr Lys Asn Val Thr Lys Gln Gly Ala Gln Ala Glu Val Ala
35 40 45

Ala Gly Gly Phe Glu Asp Leu Ile Gln Asp Ala Ser Ala Gln Ser Thr
50 55 60

Gly Lys Lys Glu Ala Thr Ser Ser Thr Thr Lys Ser Ser Lys Gly Glu
65 70 75 80

Lys Ser Glu Lys Ser Gly Lys Ser Lys Ser Ser Thr Ser Val Ala Ser
85 90 95

Ala Ser Glu Thr Ala Thr Ala Gln Ala Val Gln Gly Pro Lys Gly Leu
100 105 110

Arg Gln Asn Asn Tyr Asp Ser Pro Ser Leu Pro Thr Pro Glu Ala Gln
115 120 125

Thr Ile Asn Gly Ile Val Leu Lys Lys Gly Met Gly Thr Leu Ala Leu
130 135 140

Leu Gly Leu Val Met Thr Leu Met Ala Asn Ala Ala Gly Glu Ser Trp
145 150 155 160

Lys Ala Ser Phe Gln Ser Gln Asn Gln Ala Ile Arg Ser Gln Val Glu
165 170 175

Ser Ala Pro Ala Ile Gly Glu Ala Ile Lys Arg Gln Ala Asn His Gln
 180 185 190

Ala Ser Ala Thr Glu Ala Gln Ala Lys Gln Ser Leu Ile Ser Gly Ile
 195 200 205

Val Asn Ile Val Gly Phe Thr Val Ser Val Gly Ala Gly Ile Phe Ser
 210 215 220

Ala Ala Lys Gly Ala Thr Ser Ala Leu Lys Ser Ala Ser Phe Ala Lys
 225 230 235 240

Glu Thr Gly Ala Ser Ala Ala Gly Gly Ala Ala Ser Lys Ala Leu Thr
 245 250 255

Ser Ala Ser Ser Ser Val Gln Gln Thr Met Ala Ser Thr Ala Lys Ala
 260 265 270

Ala Thr Thr Ala Ala Ser Ser Ala Gly Ser Ala Ala Thr Lys Ala Ala
 275 280 285

Ala Asn Leu Thr Asp Asp Met Ala Ala Ala Ala Ser Lys Met Ala Ser
 290 295 300

Asp Gly Ala Ser Lys Ala Ser Gly Gly Leu Phe Gly Glu Val Leu Asn
 305 310 315 320

Lys Pro Asn Trp Ser Glu Lys Val Ser Arg Gly Met Asn Val Val Lys
 325 330 335

Thr Gln Gly Ala Arg Val Ala Ser Phe Ala Gly Asn Ala Leu Ser Ser
 340 345 350

Ser Met Gln Met Ser Gln Leu Met His Gly Leu Thr Ala Ala Val Glu
 355 360 365

Gly Leu Ser Ala Gly Gln Thr Gly Ile Glu Val Ala His His Gln Arg
 370 375 380

Leu Ala Gly Gln Ala Glu Ala Gln Ala Glu Val Leu Lys Gln Met Ser
 385 390 395 400

Ser Val Tyr Gly Gln Gln Ala Gly Gln Ala Gly Gln Leu Gln Glu Gln
 405 410 415

Ala Met Gln Ser Phe Asn Thr Ala Leu Gln Thr Leu Gln Asn Ile Ala
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Asp Ser Gln Thr Gln Thr Thr Ser Ala Ile Phe Asn
 435 440

<210> 51

<211> 493

<212> PRT

<213> C. pneumoniae CWL029

<220>
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 <223> CT578 hypothetical protein

<220>
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 <223> gi|4377121

<400> 51

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Met Ser Ile Ser Ser Ser Ser Gly Pro Asp Asn Gln Lys Asn Ile Met
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Ser Gln Val Leu Thr Ser Thr Pro Gln Gly Val Pro Gln Gln Asp Lys
          20          25          30

Leu Ser Gly Asn Glu Thr Lys Gln Ile Gln Gln Thr Arg Gln Gly Lys
          35          40          45

Asn Thr Glu Met Glu Ser Asp Ala Thr Ile Ala Gly Ala Ser Gly Lys
          50          55          60

Asp Lys Thr Ser Ser Thr Thr Lys Thr Glu Thr Ala Pro Gln Gln Gly
65          70          75          80

Val Ala Ala Gly Lys Glu Ser Ser Glu Ser Gln Lys Ala Gly Ala Asp
          85          90          95

Thr Gly Val Ser Gly Ala Ala Ala Thr Thr Ala Ser Asn Thr Ala Thr
          100          105          110

Lys Ile Ala Met Gln Thr Ser Ile Glu Glu Ala Ser Lys Ser Met Glu
          115          120          125

Ser Thr Leu Glu Ser Leu Gln Ser Leu Ser Ala Ala Gln Met Lys Glu
          130          135          140

Val Glu Ala Val Val Val Ala Ala Leu Ser Gly Lys Ser Ser Gly Ser
145          150          155          160

Ala Lys Leu Glu Thr Pro Glu Leu Pro Lys Pro Gly Val Thr Pro Arg
          165          170          175

Ser Glu Val Ile Glu Ile Gly Leu Ala Leu Ala Lys Ala Ile Gln Thr
          180          185          190

Leu Gly Glu Ala Thr Lys Ser Ala Leu Ser Asn Tyr Ala Ser Thr Gln
          195          200          205

Ala Gln Ala Asp Gln Thr Asn Lys Leu Gly Leu Glu Lys Gln Ala Ile
210          215          220

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Lys Ile Asp Lys Glu Arg Glu Glu Tyr Gln Glu Met Lys Ala Ala Glu
 225 230 235 240
 Gln Lys Ser Lys Asp Leu Glu Gly Thr Met Asp Thr Val Asn Thr Val
 245 250 255
 Met Ile Ala Val Ser Val Ala Ile Thr Val Ile Ser Ile Val Ala Ala
 260 265 270
 Ile Phe Thr Cys Gly Ala Gly Leu Ala Gly Leu Ala Ala Gly Ala Ala
 275 280 285
 Val Gly Ala Ala Ala Ala Gly Gly Ala Ala Gly Ala Ala Ala Ala Thr
 290 295 300
 Thr Val Ala Thr Gln Ile Thr Val Gln Ala Val Val Gln Ala Val Lys
 305 310 315 320
 Gln Ala Val Ile Thr Ala Val Arg Gln Ala Ile Thr Ala Ala Ile Lys
 325 330 335
 Ala Ala Val Lys Ser Gly Ile Lys Ala Phe Ile Lys Thr Leu Val Lys
 340 345 350
 Ala Ile Ala Lys Ala Ile Ser Lys Gly Ile Ser Lys Val Phe Ala Lys
 355 360 365
 Gly Thr Gln Met Ile Ala Lys Asn Phe Pro Lys Leu Ser Lys Val Ile
 370 375 380
 Ser Ser Leu Thr Ser Lys Trp Val Thr Val Gly Val Gly Val Val Val
 385 390 395 400
 Ala Ala Pro Ala Leu Gly Lys Gly Ile Met Gln Met Gln Leu Ser Glu
 405 410 415
 Met Gln Gln Asn Val Ala Gln Phe Gln Lys Glu Val Gly Lys Leu Gln
 420 425 430
 Ala Ala Ala Asp Met Ile Ser Met Phe Thr Gln Phe Trp Gln Gln Ala
 435 440 445
 Ser Lys Ile Ala Ser Lys Gln Thr Gly Glu Ser Asn Glu Met Thr Gln
 450 455 460
 Lys Ala Thr Lys Leu Gly Ala Gln Ile Leu Lys Ala Tyr Ala Ala Ile
 465 470 475 480
 Ser Gly Ala Ile Ala Gly Ala His Lys Thr Asn Asn Phe
 485 490

<210> 52
 <211> 76
 <212> PRT
 <213> C. pneumoniae CWL029

<220>
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 <223> CT753 hypothetical protein

<220>
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 <223> gi|4377216

<400> 52

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Met Arg Asn Met Glu Ala Lys Lys Ile Lys Glu Leu Ser Lys Glu Ala
1          5          10          15
Gln Leu Leu Lys Lys Leu Arg Glu Lys Ser Arg Val Leu Asp Glu Lys
          20          25          30
Asn Lys Arg Lys Ala Trp Val Ala Lys Leu Val Ala Met Pro Glu Ser
          35          40          45
Ile Arg Glu Ile Glu Lys Glu Glu Arg Val Glu Thr Pro Gln Leu Phe
          50          55          60
Gln Ala Ile Ala Glu Lys Ile Leu Glu Glu Gly Val
65          70          75

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<210> 53
 <211> 755
 <212> PRT
 <213> C. pneumoniae CWL029

<220>
 <221> misc_feature
 <223> CT456 hypothetical protein

<220>
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 <223> gi|4376866

<400> 53

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Met Ala Ala Pro Ile Asn Gln Pro Ser Thr Thr Thr Gln Ile Thr Gln
1          5          10          15
Thr Gly Gln Thr Thr Thr Thr Thr Thr Val Gly Ser Leu Gly Glu His
          20          25          30
Ser Val Thr Thr Thr Gly Ser Gly Ala Ala Ala Gln Thr Ser Gln Thr
          35          40          45
Val Thr Leu Ile Ala Asp His Glu Met Gln Glu Ile Ala Ser Gln Asp

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Ala	His	Ser	Thr	Ser	His	Thr	Gly	Pro	Gly	Thr	Pro	Val	Gly	Ala	Thr		
		355					360					365					
Val	Val	Pro	Asn	Val	Asn	Val	Asn	Leu	Gly	Gly	Ile	Lys	Val	Asp	Leu		
		370					375				380						
Gly	Gly	Ile	Asn	Leu	Gly	Gly	Ile	Thr	Thr	Asn	Val	Thr	Thr	Glu	Glu		
385					390					395					400		
Gly	Gly	Gly	Thr	Asn	Ile	Thr	Ser	Thr	Lys	Ser	Thr	Ser	Thr	Asp	Asp		
				405					410					415			
Lys	Val	Ser	Ile	Thr	Ser	Thr	Gly	Ser	Gln	Ser	Thr	Ile	Glu	Glu	Asp		
			420					425					430				
Thr	Ile	Gln	Phe	Asp	Asp	Pro	Gly	Gln	Gly	Glu	Asp	Asp	Asn	Ala	Ile		
		435					440					445					
Pro	Gly	Thr	Asn	Thr	Pro	Pro	Pro	Pro	Gly	Pro	Pro	Pro	Asn	Leu	Ser		
		450				455						460					
Ser	Ser	Arg	Leu	Leu	Thr	Ile	Ser	Asn	Ala	Ser	Leu	Asn	Gln	Val	Leu		
465					470					475					480		
Gln	Asn	Val	Arg	Gln	His	Leu	Asn	Thr	Ala	Tyr	Asp	Ser	Asn	Gly	Asn		
				485					490					495			
Ser	Val	Ser	Asp	Leu	Asn	Gln	Asp	Leu	Gly	Gln	Val	Val	Lys	Asn	Ser		
			500					505					510				
Glu	Asn	Gly	Val	Asn	Phe	Pro	Thr	Val	Ile	Leu	Pro	Lys	Thr	Thr	Gly		
		515					520					525					
Asp	Thr	Asp	Pro	Ser	Gly	Gln	Ala	Thr	Gly	Gly	Val	Thr	Glu	Gly	Gly		
	530					535					540						
Gly	His	Ile	Arg	Asn	Ile	Ile	Gln	Arg	Asn	Thr	Gln	Ser	Thr	Gly	Gln		
545					550					555					560		
Ser	Glu	Gly	Ala	Thr	Pro	Thr	Pro	Gln	Pro	Thr	Ile	Ala	Lys	Ile	Val		
				565				570						575			
Thr	Ser	Leu	Arg	Lys	Ala	Asn	Val	Ser	Ser	Ser	Ser	Val	Leu	Pro	Gln		
			580					585					590				
Pro	Gln	Val	Ala	Thr	Thr	Ile	Thr	Pro	Gln	Ala	Arg	Thr	Ala	Ser	Thr		
		595					600					605					
Ser	Thr	Thr	Ser	Ile	Gly	Thr	Gly	Thr	Glu	Ser	Thr	Ser	Thr	Thr	Ser		
	610					615					620						
Thr	Gly	Thr	Gly	Thr	Gly	Ser	Val	Ser	Thr	Gln	Ser	Thr	Gly	Val	Gly		
625					630					635					640		

Thr Pro Thr Thr Thr Thr Arg Ser Thr Gly Thr Ser Ala Thr Thr Thr
645 650 655

Thr Ser Ser Ala Ser Thr Gln Thr Pro Gln Ala Pro Leu Pro Ser Gly
660 665 670

Thr Arg His Val Ala Thr Ile Ser Leu Val Arg Asn Ala Ala Gly Arg
675 680 685

Ser Ile Val Leu Gln Gln Gly Gly Arg Ser Gln Ser Phe Pro Ile Pro
690 695 700

Pro Ser Gly Thr Gly Thr Gln Asn Met Gly Ala Gln Leu Trp Ala Ala
705 710 715 720

Ala Ser Gln Val Ala Ser Thr Leu Gly Gln Val Val Asn Gln Ala Ala
725 730 735

Thr Ala Gly Ser Gln Pro Ser Ser Arg Arg Ser Ser Pro Thr Ser Pro
740 745 750

Arg Arg Lys
755

<210> 54
<211> 221
<212> PRT
<213> C. pneumoniae CWL029

<220>
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<223> SET Domain protein

<220>
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<223> gi|4377196

<400> 54

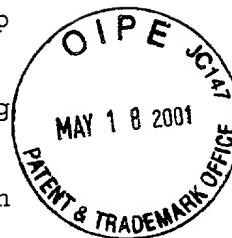
Met Ser Thr Val Thr Thr Glu Pro Cys Ser Ser Ile His Ile Ser Leu
1 5 10 15

Asn Asn Asp Trp Arg Asp Ser Gln Pro Tyr Ser Leu Asp Arg Ala Ser
20 25 30

Glu Leu Leu His Phe Arg Phe Leu Pro Ser Leu Val Phe Ser Asn Trp
35 40 45

Lys Val Glu Gln Gln Ile Glu Thr Leu Cys His Lys Ser Glu Lys Arg
50 55 60

Arg Leu Ile Ser Pro Leu Ala Lys Trp Leu Gly Lys Leu His Lys Gln
65 70 75 80



Asp Leu Leu Cys Pro Pro Ala Pro Pro Val Ser Val Cys Trp Ile Asn
85 90 95

Ala His Val Gly Tyr Gly Val Phe Ala Arg Asp Glu Ile Ala Pro Trp
100 105 110

Thr Tyr Ile Gly Glu Tyr Thr Gly Ile Leu Arg His Arg Gln Ala Ile
115 120 125

Trp Met Asp Glu Asn Asp Tyr Cys Phe Arg Tyr Pro Met Pro Leu Phe
130 135 140

Thr Leu Arg Tyr Phe Thr Ile Asp Ser Gly Lys Gln Gly Asn Val Thr
145 150 155 160

Arg Phe Ile Asn His Ser Glu Gln Pro Asn Ala Glu Ala Ile Gly Val
165 170 175

Phe Ser Glu Gly Leu Phe His Val Ile Ile Arg Thr Val Ala Pro Ile
180 185 190

Tyr Ala Gly Gln Glu Ile Cys Tyr His Tyr Gly Pro Leu Tyr Trp Lys
195 200 205

His Arg Lys Lys Arg Glu Glu Phe Ile Pro Glu Glu Glu
210 215 220

<210> 55

<211> 98

<212> PRT

<213> C. pneumoniae CWL029

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|4376483

<400> 55

Met Ser Tyr Pro Asp Ile Ser Asn Val Gln Ala Ser Ser Ile Gln Ser
1 5 10 15

Ala Leu Leu His Lys Thr Ser Asp Gln Ile Gln Gln Lys Arg Cys Phe
20 25 30

Lys Gln Ser Thr Phe Val Ile Leu Ala Val Ser Leu Val Ile Ile Gly
35 40 45

Ser Leu Phe Leu Leu Ala Gly Val Ala Ile Leu Thr Val Phe Ser His

50 55 60

Gly Val Leu Ser Leu Val Phe Gly Val Leu Gly Ile Val Leu Gly Leu
65 70 75 80

Leu Leu Leu Ala Gly Gly Val Gly Leu Leu Val Glu Glu Ala Lys Ser
 85 90 95

Leu Leu

<210> 56
<211> 64
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> CT382.1 hypothetical protein

<220>
<221> misc_feature
<223> gi|4376770

<400> 56

Met Ile Lys Gln Ala Cys Lys Phe Tyr Leu Leu Gln Cys Leu Leu Cys
1 5 10 15

Ala Leu Tyr Trp Leu Leu Lys Tyr Cys Arg Lys Leu Leu Lys Gly Thr
 20 25 30

Leu His His Ser Glu Glu Thr Leu Tyr Gln Ala Leu Leu Ser Ser Leu
 35 40 45

Ile Asp Leu Leu Tyr Gln Leu Lys Gln Leu Pro Ala Pro Thr Asn Glu
50 55 60

<210> 57
<211> 50
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|4376779

<400> 57

Met Arg Thr Tyr Thr Arg Ser Pro Lys Gln Ser Gly Val Glu Arg Lys
1 5 10 15

Gln Glu Asp Ala Glu Thr Ser Phe Ile Glu Thr Pro Lys Gly Ile Leu
20 25 30

Lys Lys Pro Gly Asn Lys Asp Pro Lys Gly Lys His Val His Trp Lys
35 40 45

Asp Ser
50

<210> 58

<211> 775

<212> PRT

<213> C. pneumoniae CWL029

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|4376756

<400> 58

Met Ala Ser Gly Ile Gly Gly Ser Ser Gly Leu Gly Lys Ile Pro Pro
1 5 10 15

Lys Asp Asn Gly Asp Arg Ser Arg Ser Pro Ser Pro Lys Gly Glu Leu
20 25 30

Gly Ser His Glu Ile Ser Leu Pro Pro Gln Glu His Gly Glu Glu Gly
35 40 45

Ala Ser Gly Ser Ser His Ile His Ser Ser Ser Ser Phe Leu Pro Glu
50 55 60

Asp Gln Glu Ser Gln Ser Ser Ser Ser Ala Ala Ser Ser Pro Gly Phe
65 70 75 80

Phe Ser Arg Val Arg Ser Gly Val Asp Arg Ala Leu Lys Ser Phe Gly
85 90 95

Asn Phe Phe Ser Ala Glu Ser Thr Ser Gln Ala Arg Glu Thr Arg Gln
100 105 110

Ala Phe Val Arg Leu Ser Lys Thr Ile Thr Ala Asp Glu Arg Arg Asp
115 120 125

420					425					430						
Thr	Glu	Arg	Thr	Gly	Ser	Pro	His	Asp	Val	Pro	Arg	Arg	Asn	Gly	Ser	
435					440					445						
Pro	Arg	Glu	Asp	Ser	Pro	Leu	Met	Asn	Ala	Leu	Val	Gly	Trp	Ala	His	
450					455					460						
Lys	His	Gly	Ala	Lys	Thr	Lys	Glu	Ser	Ser	Glu	Ser	Ser	Thr	Pro	Glu	
465					470					475					480	
Ile	Ser	Ile	Ser	Ala	Pro	Ile	Val	Arg	Gly	Trp	Ser	Gln	Asp	Ser	Ser	
485					490					495						
Val	Ser	Phe	Ile	Val	Met	Glu	Asp	Asp	His	Ile	Phe	Tyr	Asp	Val	Pro	
500					505					510						
Arg	Arg	Lys	Asp	Gly	Ile	Tyr	Asp	Val	Pro	Ser	Ser	Pro	Arg	Trp	Ser	
515					520					525						
Pro	Ala	Arg	Glu	Leu	Glu	Glu	Asp	Val	Phe	Gly	Asp	Tyr	Glu	Val	Pro	
530					535					540						
Ile	Thr	Ser	Ala	Glu	Pro	Ser	Lys	Asp	Lys	Asn	Ile	Tyr	Met	Thr	Pro	
545					550					555					560	
Arg	Leu	Ala	Thr	Pro	Ala	Ile	Tyr	Asp	Leu	Pro	Ser	Arg	Pro	Gly	Ser	
565					570					575						
Ser	Gly	Ser	Ser	Arg	Ser	Pro	Ser	Ser	Asp	Arg	Val	Arg	Ser	Ser	Ser	
580					585					590						
Pro	Asn	Arg	Arg	Gly	Val	Pro	Leu	Pro	Pro	Val	Pro	Ser	Pro	Ala	Met	
595					600					605						
Ser	Glu	Glu	Gly	Ser	Ile	Tyr	Glu	Asp	Met	Ser	Gly	Ala	Ser	Gly	Ala	
610					615					620						
Gly	Glu	Ser	Asp	Tyr	Glu	Asp	Met	Ser	Arg	Ser	Pro	Ser	Pro	Arg	Gly	
625					630					635					640	
Asp	Leu	Asp	Glu	Pro	Ile	Tyr	Ala	Asn	Thr	Pro	Glu	Asp	Asn	Pro	Phe	
645					650					655						
Thr	Gln	Arg	Asn	Ile	Asp	Arg	Ile	Leu	Gln	Glu	Arg	Ser	Gly	Gly	Ala	
660					665					670						
Ser	Ala	Ser	Pro	Val	Glu	Pro	Ile	Tyr	Asp	Glu	Ile	Pro	Trp	Ile	His	
675					680					685						
Gly	Arg	Pro	Pro	Ala	Thr	Leu	Pro	Arg	Pro	Glu	Asn	Thr	Leu	Thr	Asn	
690					695					700						
Val	Ser	Leu	Arg	Val	Ser	Pro	Gly	Phe	Gly	Pro	Glu	Val	Arg	Ala	Ala	
705					710					715					720	

Leu Leu Ser Glu Ser Val Ser Ala Val Met Val Glu Ala Glu Ser Ile
 725 730 735
 Val Pro Pro Thr Glu Pro Gly Asp Gly Glu Ser Glu Tyr Leu Glu Pro
 740 745 750
 Leu Gly Gly Leu Val Ala Thr Thr Lys Ile Leu Leu Gln Lys Gly Trp
 755 760 765
 Pro Arg Gly Glu Ser Asn Ala
 770 775

<210> 59
 <211> 104
 <212> PRT
 <213> C. trachomatis

 <220>
 <221> misc_feature
 <223> hypothetical protein

<220>
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 <223> gi|3328515

<400> 59

Met Gly Asp Val Met Ile Gln Ser Val Lys Thr Glu Ser Gly Leu Val
 1 5 10 15
 Glu Gly His Arg Gly Ile Cys Asp Ser Leu Gly Arg Val Val Gly Ala
 20 25 30
 Leu Ala Lys Val Ala Lys Leu Val Val Ala Leu Ala Ala Leu Val Leu
 35 40 45
 Asn Gly Ala Leu Cys Val Leu Ser Leu Val Ala Leu Cys Val Gly Ala
 50 55 60
 Thr Pro Val Gly Pro Leu Ala Val Leu Val Ala Thr Thr Leu Ala Ser
 65 70 75 80
 Phe Leu Cys Ala Ala Cys Val Leu Phe Ile Ala Ala Lys Asp Arg Gly
 85 90 95
 Trp Ile Ala Ser Thr Asn Lys Cys
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<210> 60
 <211> 439
 <212> PRT
 <213> C. trachomatis

<220>
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<220>
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 <223> gi|3329021

<400> 60

Met	Thr	Thr	Gly	Val	Arg	Gly	Asp	Asn	Ala	Pro	Asp	Pro	Ser	Leu	Leu	1	5	10	15
Ala	Gln	Leu	Thr	Gln	Asn	Ala	Asn	Ser	Ala	Ser	Ala	Ala	Ser	Thr	Gly	20	25	30	
Lys	Asn	Gly	Gln	Val	Ala	Gly	Ala	Lys	Gln	Glu	Asn	Val	Asp	Ala	Ser	35	40	45	
Phe	Glu	Asp	Leu	Leu	Gln	Asp	Ala	Gln	Gly	Thr	Gly	Gly	Ser	Lys	Lys	50	55	60	
Ala	Thr	Ala	Asn	Gln	Thr	Ser	Lys	Ser	Gly	Lys	Ser	Glu	Lys	Ala	Gln	65	70	75	80
Ala	Ser	Ser	Gly	Thr	Ser	Thr	Thr	Thr	Ser	Val	Ala	Gln	Ala	Ser	Gln	85	90	95	
Thr	Ala	Thr	Ala	Gln	Ala	Val	His	Gly	Ala	Arg	Asp	Ser	Gly	Phe	Asn	100	105	110	
Ser	Asp	Gly	Ser	Ala	Thr	Leu	Pro	Ser	Pro	Thr	Gly	Thr	Glu	Val	Asn	115	120	125	
Gly	Val	Val	Leu	Arg	Lys	Gly	Met	Gly	Thr	Leu	Ala	Leu	Met	Gly	Leu	130	135	140	
Ile	Met	Thr	Leu	Leu	Ala	Gln	Ala	Ser	Ala	Lys	Ser	Trp	Ser	Ser	Ser	145	150	155	160
Phe	Gln	Gln	Gln	Asn	Gln	Ala	Ile	Gln	Asn	Gln	Val	Ala	Met	Ala	Pro	165	170	175	
Glu	Ile	Gly	Asn	Ala	Ile	Arg	Thr	Gln	Ala	Asn	His	Gln	Ala	Gln	Ala	180	185	190	
Thr	Glu	Leu	Gln	Ala	Gln	Gln	Ser	Leu	Ile	Ser	Gly	Ile	Thr	Asn	Ile	195	200	205	
Val	Gly	Phe	Ala	Val	Ser	Val	Gly	Gly	Gly	Ile	Leu	Ser	Ala	Ser	Lys	210	215	220	

Ser Leu Gly Gly Leu Lys Ser Ala Ala Phe Thr Asn Glu Thr Ala Ser
 225 230 235 240
 Ala Thr Thr Ser Ala Thr Ser Ser Leu Ala Lys Thr Ala Thr Ser Ala
 245 250 255
 Leu Asp Asp Val Ala Gly Thr Ala Thr Ala Val Gly Ala Lys Ala Thr
 260 265 270
 Ser Gly Ala Ala Ser Ala Ala Ser Ser Ala Ala Thr Lys Leu Thr Gln
 275 280 285
 Asn Met Ala Glu Ser Ala Ser Lys Thr Leu Ser Gln Thr Ala Ser Lys
 290 295 300
 Ser Ala Gly Gly Leu Phe Gly Gln Ala Leu Asn Thr Pro Ser Trp Ser
 305 310 315 320
 Glu Lys Val Ser Arg Gly Met Asn Val Val Lys Thr Gln Gly Thr Arg
 325 330 335
 Ala Ala Lys Phe Ala Gly Arg Ala Leu Ser Ser Ala Met Asn Ile Ser
 340 345 350
 Gln Met Val His Gly Leu Thr Ala Gly Ile Asp Gly Ile Val Gly Gly
 355 360 365
 Val Ile Gly Ala Gln Val Ala Gln Glu Gln Arg Met Ala Gly Met Ala
 370 375 380
 Glu Ala Arg Ala Glu Glu Leu Lys Ser Leu Asn Ser Val Gln Ala Gln
 385 390 395 400
 Tyr Ala Ser Gln Ala Gln Gln Leu Gln Glu Gln Ser Gln Gln Ser Phe
 405 410 415
 Asn Ser Ala Leu Gln Thr Leu Gln Ser Ile Ser Asp Ser Ala Leu Gln
 420 425 430
 Thr Thr Ala Ser Met Phe Asn
 435

<210> 61
 <211> 168
 <212> PRT
 <213> C. trachomatis

<220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|3329121

<400> 61

Met Val Arg Tyr Pro Leu Glu Pro Val Leu Ser Ile Lys Lys Asp Arg
1 5 10 15

Val Asp Arg Ala Glu Lys Val Val Lys Glu Lys Arg Arg Leu Leu Glu
20 25 30

Leu Glu Gln Glu Lys Leu Arg Glu Arg Glu Ser Glu Arg Asp Lys Val
35 40 45

Lys Asn His Tyr Met Gln Lys Ile Arg Gln Leu Arg Glu Gln Leu Asp
50 55 60

Asp Gly Thr Thr Ser Asp Ala Ile Leu Lys Met Lys Ala Tyr Ile Lys
65 70 75 80

Val Val Ala Ile Gln Leu Ser Glu Glu Glu Glu Lys Val Asn Lys Gln
85 90 95

Lys Glu Asn Val Leu Ala Ala Ser Lys Glu Leu Glu Arg Ala Glu Val
100 105 110

Glu Leu Thr Lys Arg Arg Lys Glu Glu Glu Lys Thr Arg Leu His Lys
115 120 125

Glu Glu Trp Met Lys Glu Ala Leu Lys Glu Glu Ala Arg Gln Glu Glu
130 135 140

Lys Glu Gln Asp Glu Met Gly Gln Leu Leu His Gln Leu His Lys Gln
145 150 155 160

Lys Gln Arg Glu Ser Gly Glu Asn
165

<210> 62

<211> 819

<212> PRT

<213> H. influenzae

<220>

<221> misc_feature

<223> conserved hypothetical protein

<220>

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<223> gi|1574537

<400> 62

Met Ala Asp Val Leu Ser Arg Phe Asn Ser Gly Lys Leu Trp Asp Phe

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Lys Gly Gly Ile His Pro Pro Glu Met Lys Ser Gln Ser Asn Ser Gln	20	25	30
Pro Leu Arg His Leu Pro Leu Gly Thr Asp Phe Tyr Ile Pro Leu Lys	35	40	45
Gln His Leu Gly Thr Thr Gly Asn Leu Leu Ile Lys Glu Gly Asp Tyr	50	55	60
Val Leu Lys Gly Gln Ala Leu Thr Lys Gly Asp Gly Leu Arg Met Leu	65	70	75
Pro Val His Ala Pro Thr Ser Gly Thr Ile Lys Ser Ile Lys Pro Tyr	85	90	95
Val Ala Thr His Pro Ser Gly Leu Asp Glu Pro Thr Ile His Leu Gln	100	105	110
Ala Asp Gly Leu Asp Gln Trp Ile Glu Arg Asn Pro Ile Asp Asp Phe	115	120	125
Ser Thr Leu Ser Ser Glu Gln Leu Ile His Lys Ile Tyr Gln Ala Gly	130	135	140
Ile Ala Gly Leu Gly Gly Ala Val Phe Pro Thr Ala Ala Lys Ile Gln	145	150	155
Ser Ala Glu Gln Lys Val Lys Leu Leu Ile Ile Asn Gly Ala Glu Cys	165	170	175
Glu Pro Tyr Ile Thr Cys Asp Asp Arg Leu Met Arg Glu Arg Ala Asp	180	185	190
Glu Ile Ile Lys Gly Ile Arg Ile Leu Arg Tyr Ile Leu His Pro Glu	195	200	205
Lys Val Val Ile Ala Ile Glu Asp Asn Lys Pro Glu Ala Ile Ser Ala	210	215	220
Ile Arg Asn Ala Leu Gln Gly Ala Asn Asp Ile Ser Ile Arg Val Ile	225	230	235
Pro Thr Lys Tyr Pro Ser Gly Ala Thr Lys Gln Leu Ile Tyr Leu Leu	245	250	255
Thr Gly Ile Glu Val Pro Ser Gly Glu Arg Ser Ser Ser Ile Gly Val	260	265	270
Leu Met Gln Asn Val Gly Thr Met Phe Ala Ile Lys Arg Ala Ile Ile	275	280	285
Asn Asp Glu Pro Leu Ile Glu Arg Val Val Thr Leu Thr Gly Asn Lys	290	295	300

Ile	Ala	Glu	Lys	Gly	Asn	Tyr	Trp	Val	Arg	Leu	Gly	Thr	Pro	Ile	Ser
305					310					315					320
Gln	Ile	Leu	Ser	Asp	Ala	Gly	Tyr	Gln	Phe	Asp	Lys	His	Phe	Pro	Ile
				325					330					335	
Phe	Ala	Gly	Gly	Pro	Met	Met	Gly	Leu	Glu	Leu	Pro	Asn	Leu	Asn	Ala
			340					345					350		
Pro	Val	Thr	Lys	Leu	Val	Asn	Cys	Leu	Leu	Ala	Pro	Asp	Tyr	Leu	Glu
			355				360					365			
Tyr	Ala	Glu	Pro	Glu	Ala	Glu	Gln	Ala	Cys	Ile	Arg	Cys	Ser	Ser	Cys
						375					380				
Ser	Asp	Ala	Cys	Pro	Val	Asn	Leu	Met	Pro	Gln	Gln	Leu	Tyr	Trp	Phe
385					390					395					400
Ala	Arg	Ser	Glu	Asp	His	Lys	Lys	Ser	Glu	Glu	Tyr	Ala	Leu	Lys	Asp
				405					410					415	
Cys	Ile	Glu	Cys	Gly	Ile	Cys	Ala	Tyr	Val	Cys	Pro	Ser	His	Ile	Pro
			420					425					430		
Leu	Ile	Gln	Tyr	Phe	Arg	Gln	Glu	Lys	Ala	Lys	Ile	Trp	Gln	Ile	Lys
			435				440					445			
Glu	Lys	Gln	Lys	Lys	Ser	Asp	Glu	Ala	Lys	Ile	Arg	Phe	Glu	Ala	Lys
						455					460				
Gln	Ala	Arg	Met	Glu	Arg	Glu	Glu	Gln	Glu	Arg	Lys	Ala	Arg	Ser	Gln
465					470					475					480
Arg	Ala	Ala	Gln	Ala	Arg	Arg	Glu	Glu	Leu	Ala	Gln	Thr	Lys	Gly	Glu
				485					490					495	
Asp	Pro	Val	Lys	Ala	Ala	Leu	Glu	Arg	Leu	Lys	Ala	Lys	Lys	Ala	Asn
			500					505					510		
Glu	Thr	Glu	Ser	Thr	Gln	Ile	Lys	Thr	Leu	Thr	Ser	Glu	Lys	Gly	Glu
			515				520					525			
Val	Leu	Pro	Asp	Asn	Thr	Asp	Leu	Met	Ala	Gln	Arg	Lys	Ala	Arg	Arg
					535						540				
Leu	Ala	Arg	Gln	Gln	Ala	Ala	Ser	Gln	Val	Glu	Asn	Gln	Glu	Gln	Gln
545					550					555					560
Thr	Gln	Pro	Thr	Asn	Ala	Lys	Lys	Ala	Ala	Val	Ala	Ala	Ala	Leu	Ala
				565					570					575	
Arg	Ala	Lys	Ala	Lys	Lys	Leu	Ala	Gln	Ala	Asn	Ser	Thr	Ser	Glu	Ala
			580					585					590		

Ile Ser Asn Ser Gln Thr Ala Glu Asn Gln Val Glu Lys Thr Lys Ser
595 600 605

Ala Val Glu Lys Thr Gln Glu Asn Ser Thr Ala Leu Asp Pro Lys Lys
610 615 620

Ala Ala Val Ala Ala Ala Ile Ala Arg Ala Lys Ala Lys Lys Leu Ala
625 630 635 640

Gln Thr Asn Ser Thr Ser Glu Ala Ile Ser Asn Ser Gln Thr Ala Glu
645 650 655

Asn Glu Val Glu Lys Thr Lys Ser Ala Val Glu Lys Thr Glu Glu Asn
660 665 670

Ser Thr Ala Leu Asp Ala Lys Lys Ala Ala Ile Ala Ala Ala Ile Ala
675 680 685

Arg Ala Lys Ala Lys Lys Leu Ala Gln Ala Asn Ser Ala Ser Glu Ala
690 695 700

Ile Ser Asn Ser Gln Thr Ala Glu Asn Glu Val Glu Lys Thr Lys Ser
705 710 715 720

Ala Val Glu Lys Thr Gln Gln Asn Ser Thr Ala Leu Asp Pro Lys Lys
725 730 735

Ala Ala Val Ala Ala Ala Ile Ala Arg Ala Lys Ala Lys Lys Leu Ala
740 745 750

Gln Ala Asn Ser Thr Ser Glu Ala Ile Ser Asn Ser Gln Thr Ala Glu
755 760 765

Asn Glu Val Glu Lys Thr Lys Ser Ala Val Glu Lys Thr Gln Glu Asn
770 775 780

Ser Thr Ala Leu Asp Pro Lys Lys Ala Ala Val Ala Ala Ala Ile Ala
785 790 795 800

Arg Ala Lys Ala Lys Lys Leu Ala Lys Thr Gln Ala Thr Leu Glu Asn
805 810 815

Asn Gln Glu

<210> 63
<211> 52
<212> PRT
<213> H. influenzae

<220>
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<223> predicted coding region HI1562

<220>
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<223> gi|1574414

<400> 63

Met Leu Ser Lys Asp Pro Lys Val Leu Ile Lys Leu Gly Glu Leu Glu
1 5 10 15
Lys Asp Lys Ser Lys Ala Lys Lys Tyr Phe Gly Asp Ala Cys Asp Leu
20 25 30
Arg Ser Gln Glu Gly Cys Asp Lys Tyr Arg Glu Leu Asn Gln Lys Gln
35 40 45
Asp Thr Asn Lys
50

<210> 64
<211> 150
<212> PRT
<213> H. influenzae

<220>
<221> misc_feature
<223> conserved hypothetical protein

<220>
<221> misc_feature
<223> gi|1574625

<400> 64

Met Thr Leu Gln Leu Asn Thr Ile Ala Leu Leu Leu Val Ile Leu Leu
1 5 10 15
Ile Leu Gly Val Leu Ser Asn Asn Ser Thr Ile Thr Ile Ser Ala Ala
20 25 30
Val Leu Leu Ile Met Gln Gln Thr Phe Leu Ser Ser His Ile Pro Leu
35 40 45
Leu Glu Lys Tyr Gly Val Lys Ile Gly Ile Ile Ile Leu Thr Ile Gly
50 55 60
Val Leu Ser Pro Leu Val Ser Gly Lys Ile Gln Leu Pro Asp Leu Ser
65 70 75 80
Gly Phe Leu Ser Trp Lys Met Ala Leu Ser Ile Ser Val Gly Val Leu
85 90 95
Val Ala Trp Leu Ala Gly Lys Gly Val Pro Leu Met Gly Glu Gln Pro

Ile Leu Val Thr Gly Leu Leu Ile Gly Thr Ile Ile Gly Val Ala Phe
115 120 125
Leu Gly Gly Ile Pro Val Gly Pro Leu Ile Ala Ala Gly Ile Leu Ala
130 135 140
Leu Leu Leu Gly Lys Ile
145 150

<210> 65
<211> 129
<212> PRT
<213> H. influenzae
<220>
<221> misc_feature
<223> predicted coding region HI1339

<220>
<221> misc_feature
<223> gi|1574799

<400> 65

Met Glu Lys Ile Met Lys Lys Leu Thr Leu Ala Leu Val Leu Gly Ser
1 5 10 15
Ala Leu Val Val Thr Gly Cys Phe Asp Lys Gln Glu Ala Lys Gln Lys
20 25 30
Val Glu Asp Thr Lys Gln Thr Val Ala Ser Val Ala Ser Glu Thr Lys
35 40 45
Asp Ala Ala Ala Asn Thr Met Thr Glu Val Lys Glu Lys Ala Gln Gln
50 55 60
Leu Ser Thr Asp Val Lys Asn Lys Val Ala Glu Lys Val Glu Asp Ala
65 70 75 80
Lys Glu Val Ile Lys Ser Ala Thr Glu Ala Ala Ser Glu Lys Val Gly
85 90 95
Glu Met Lys Glu Ala Ala Ser Glu Lys Ala Ser Glu Met Lys Glu Ala
100 105 110
Val Ser Glu Lys Ala Thr Gln Ala Val Asp Ala Val Lys Glu Ala Thr
115 120 125
Lys

<210> 66
 <211> 136
 <212> PRT
 <213> H. influenzae

<220>
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 <223> predicted coding region HI1462.1

<220>
 <221> misc_feature
 <223> "Xaa" may be any amino acid

<220>
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 <223> gi|3212225

<400> 66

Met	Xaa	Gln	Ser	Asn	Tyr	Ser	Met	Glu	Lys	Ile	Met	Lys	Lys	Leu	Thr
1				5					10					15	
Leu	Ala	Leu	Val	Leu	Gly	Ser	Ala	Leu	Val	Val	Thr	Gly	Cys	Phe	Asp
			20					25					30		
Lys	Gln	Glu	Ala	Lys	Gln	Lys	Val	Glu	Asp	Thr	Lys	Gln	Thr	Val	Ala
			35				40					45			
Ser	Val	Ala	Ser	Glu	Thr	Lys	Asp	Ala	Ala	Ala	Asn	Thr	Met	Thr	Glu
			50			55					60				
Val	Lys	Glu	Lys	Ala	Gln	Gln	Leu	Ser	Thr	Asp	Val	Lys	Asn	Lys	Val
65					70					75					80
Ala	Glu	Lys	Val	Glu	Asp	Ala	Lys	Glu	Val	Ile	Lys	Ser	Ala	Thr	Glu
				85					90					95	
Ala	Ala	Ser	Glu	Lys	Val	Gly	Glu	Met	Lys	Glu	Ala	Ala	Ser	Glu	Lys
			100					105					110		
Ala	Ser	Glu	Met	Lys	Glu	Ala	Val	Ser	Glu	Lys	Ala	Thr	Gln	Ala	Val
			115				120					125			
Asp	Ala	Val	Lys	Glu	Ala	Thr	Lys								
			130			135									

<210> 67
 <211> 113
 <212> PRT
 <213> H. influenzae

<220>

<221> misc_feature
<223> conserved hypothetical protein

<220>
<221> misc_feature
<223> gi|1574607

<400> 67

Met Phe Thr Asp Trp Lys Glu His Thr Ser His Val Lys Lys Ser Phe
1 5 10 15
Gly Glu Leu Gly Lys Gln Tyr Pro Lys Met Leu Gln Ala Tyr Gln Ala
20 25 30
Leu Gly Ala Ala Ala Glu Gly Asn Val Leu Asp Ala Lys Thr Arg
35 40 45
Glu Leu Ile Ala Leu Ala Val Ala Val Thr Thr Arg Cys Glu Ser Cys
50 55 60
Ile Ser Ala His Ala Glu Glu Ala Val Lys Ala Gly Ala Ser Glu Ala
65 70 75 80
Glu Val Ala Ala Ala Leu Ala Thr Ala Ile Ala Leu Asn Ala Gly Ala
85 90 95
Ala Tyr Thr Tyr Ser Leu Arg Ala Leu Glu Ala Tyr Ser Val Gln Lys
100 105 110

Ala

<210> 68
<211> 33
<212> PRT
<213> H. pylori

<220>
<221> misc_feature
<223> predicted coding region HP0131

<220>
<221> misc_feature
<223> gi|2313229

<400> 68

Met Pro Tyr Pro Phe Met Ser Phe Lys Gln Thr Phe Tyr Tyr Lys Met
1 5 10 15

Glu Ser Lys Thr Met Lys Glu Arg Phe Lys Thr Leu Phe Phe Lys Ile
 20 25 30

Phe

<210> 69
 <211> 12
 <212> PRT
 <213> H. pylori

<220>
 <221> misc_feature
 <223> predicted coding region HP0429

<220>
 <221> misc_feature
 <223> gi|2313552

<400> 69

Met Asn Glu Asn Gly Lys Lys Glu Ala Leu Gln Leu
 1 5 10

<210> 70
 <211> 26
 <212> PRT
 <213> H. pylori

<220>
 <221> misc_feature
 <223> predicted coding region HP0560

<220>
 <221> misc_feature
 <223> gi|2313684

<400> 70

Met Gly Ile Ile Tyr Leu Ile Leu Phe Leu Ile Val Ile Tyr Leu Leu
 1 5 10 15

Tyr Arg Ile Leu Asp Val Leu Glu Gln Lys
 20 25

<210> 71
 <211> 48
 <212> PRT
 <213> H. pylori

<220>

<221> misc_feature
<223> predicted coding region HP0756

<220>
<221> misc_feature
<223> gi|2313894

<400> 71

Met Lys Asp Tyr Glu Asp Glu Leu Glu Asp Phe Glu Glu Glu Glu Leu
1 5 10 15

Glu Gly Phe Glu Glu Glu Asp Glu Glu Tyr Gly Asp Tyr Lys Asn Val
20 25 30

Tyr Asp Asp Asp Asp Tyr Glu Asp Tyr Asn Ser Asp Tyr Glu Glu Glu
35 40 45

<210> 72
<211> 23
<212> PRT
<213> H. pylori

<220>
<221> misc_feature
<223> predicted coding region HP1500

<220>
<221> misc_feature
<223> gi|2314686

<400> 72

Met Cys Ser Asn Ser Ser Ser Leu Lys Ile Tyr Ser Leu Glu Ser Asn
1 5 10 15

Phe Ser Phe Asn Ser Leu Phe
20

<210> 73
<211> 1805
<212> PRT
<213> M. genitalium

<220>
<221> misc_feature
<223> gi|1045905

<400> 73

290					295					300					
Phe 305	Gln	Asp	Gly	Ile	Thr 310	Lys	Gln	Asn	Ala	Gln 315	His	Val	Glu	Asp	Lys 320
Leu	Val	Ala	Leu	Asn 325	Lys	Glu	Lys	Asp	Arg 330	Leu	Asn	Thr	Gln	Lys	Glu 335
Ala	Phe	Phe	Asn 340	Leu	Arg	Gln	Ser	Ala 345	Leu	Ile	Asp	Ile	Asn	Lys	Leu 350
Gln	Gln	Glu 355	Asn	Glu	Leu	Phe	Ala 360	Lys	His	Leu	Glu	His 365	Gln	Gln	Asn 370
Glu 370	Phe	Glu	Gln	Lys	Gln	Ser 375	Asp	Ser	Leu	Leu	Lys 380	Leu	Glu	Thr	Glu 385
Tyr 385	Lys	Ala	Leu	Gln 390	His	Lys	Ile	Asn	Glu	Phe 395	Lys	Asn	Glu	Ser	Ala 400
Thr	Lys	Ser	Glu	Glu 405	Leu	Leu	Asn	Gln	Glu 410	Arg	Glu	Leu	Phe	Glu	Lys 415
Arg	Arg	Glu	Ile 420	Asp	Thr	Leu	Leu	Thr 425	Gln	Ala	Ser	Leu	Glu	Tyr	Glu 430
His	Gln	Arg 435	Glu	Ser	Ser	Gln	Leu 440	Leu	Lys	Asp	Lys	Gln 445	Asn	Glu	Val 450
Lys 450	Gln	His	Phe	Gln	Asn	Leu 455	Glu	Tyr	Ala	Lys	Lys 460	Glu	Leu	Asp	Lys 465
Glu 465	Arg	Asn	Leu	Leu 470	Asp	Gln	Gln	Lys	Lys	Val 475	Asp	Ser	Glu	Ala	Ile 480
Phe	Gln	Leu	Lys 485	Glu	Lys	Val	Ala	Gln 490	Glu	Arg	Lys	Glu	Leu	Glu	Glu 495
Leu	Tyr	Leu 500	Val	Lys	Lys	Gln	Lys	Gln 505	Asp	Gln	Lys	Glu	Asn	Glu	Leu 510
Leu	Phe	Phe 515	Glu	Lys	Gln	Leu	Lys	Gln 520	His	Gln	Ala	Asp 525	Phe	Glu	Asn 530
Glu 530	Leu	Glu	Ala	Lys	Gln	Gln	Glu	Leu 535	Phe	Glu	Ala 540	Lys	His	Ala	Leu 545
Glu 545	Arg	Ser	Phe	Ile 550	Lys	Leu	Glu	Asp	Lys	Glu 555	Lys	Asp	Leu	Asn	Thr 560
Lys	Ala	Gln	Gln 565	Ile	Ala	Asn	Glu	Phe 570	Ser	Gln	Leu	Lys	Thr	Asp	Lys 575
Ser	Lys	Ser 580	Ala	Asp	Phe	Glu	Leu	Met 585	Leu	Gln	Asn	Glu 590	Tyr	Glu	Asn 595

Glu Gln Gln Lys Lys Glu	Leu Gln Gln Ala Thr	Leu Gln Leu Glu
1175	1180	1185
Gln Phe Lys Phe Glu Lys	Gln Asn Phe Asp Ile	Glu Lys Gln Arg
1190	1195	1200
Gln Leu Val Ala Ile Lys	Thr Gln Cys Glu Lys	Leu Ser Asp Glu
1205	1210	1215
Lys Lys Ala Leu Asn Gln	Lys Leu Val Glu Leu	Lys Asn Leu Ser
1220	1225	1230
Gln Thr Tyr Leu Ala Asn	Lys Asn Lys Ala Glu	Tyr Ser Gln Gln
1235	1240	1245
Gln Leu Gln Gln Lys Tyr	Thr Asn Leu Leu Asp	Leu Lys Glu Asn
1250	1255	1260
Leu Glu Arg Thr Lys Asp	Gln Leu Asp Lys Lys	His Arg Ser Ile
1265	1270	1275
Phe Ala Arg Leu Thr Lys	Phe Ala Asn Asp Leu	Arg Phe Glu Lys
1280	1285	1290
Lys Gln Leu Leu Lys Ala	Gln Arg Ile Val Asp	Asp Lys Asn Arg
1295	1300	1305
Leu Leu Lys Glu Asn Glu	Arg Asn Leu His Phe	Leu Ser Asn Glu
1310	1315	1320
Thr Glu Arg Lys Arg Ala	Val Leu Glu Asp Gln	Ile Ser Tyr Phe
1325	1330	1335
Glu Lys Gln Arg Lys Gln	Ala Thr Asp Ala Ile	Leu Ala Ser His
1340	1345	1350
Lys Glu Val Lys Lys Lys	Glu Gly Glu Leu Gln	Lys Leu Leu Val
1355	1360	1365
Glu Leu Glu Thr Arg Lys	Thr Lys Leu Asn Asn	Asp Phe Ala Lys
1370	1375	1380
Phe Ser Arg Gln Arg Glu	Glu Phe Glu Asn Gln	Arg Leu Lys Leu
1385	1390	1395
Leu Glu Leu Gln Lys Thr	Leu Gln Thr Gln Thr	Asn Ser Asn Asn
1400	1405	1410
Phe Lys Thr Lys Ala Ile	Gln Glu Ile Glu Asn	Ser Tyr Lys Arg
1415	1420	1425
Gly Met Glu Glu Leu Asn	Phe Gln Lys Lys Glu	Phe Asp Lys Asn
1430	1435	1440

Lys	Ser	Arg	Leu	Tyr	Glu	Tyr	Phe	Arg	Lys	Met	Arg	Asp	Glu	Ile
	1445					1450					1455			
Glu	Arg	Lys	Glu	Ser	Gln	Val	Lys	Leu	Val	Leu	Lys	Glu	Thr	Gln
	1460					1465					1470			
Arg	Lys	Ala	Asn	Leu	Leu	Glu	Ala	Gln	Ala	Asn	Lys	Leu	Asn	Ile
	1475					1480					1485			
Glu	Lys	Asn	Thr	Ile	Asp	Phe	Lys	Glu	Lys	Glu	Leu	Lys	Ala	Phe
	1490					1495					1500			
Lys	Asp	Lys	Val	Asp	Gln	Asp	Ile	Asp	Ser	Thr	Asn	Lys	Gln	Arg
	1505					1510					1515			
Lys	Glu	Leu	Asn	Glu	Leu	Leu	Asn	Glu	Asn	Lys	Leu	Leu	Gln	Gln
	1520					1525					1530			
Ser	Leu	Ile	Glu	Arg	Glu	Arg	Ala	Ile	Asn	Ser	Lys	Asp	Ser	Leu
	1535					1540					1545			
Leu	Asn	Lys	Lys	Ile	Glu	Thr	Ile	Lys	Arg	Gln	Leu	His	Asp	Lys
	1550					1555					1560			
Glu	Met	Arg	Val	Leu	Arg	Leu	Val	Asp	Arg	Met	Lys	Leu	Ala	Glu
	1565					1570					1575			
Gln	Lys	Tyr	Gln	Thr	Glu	Ile	Asn	Arg	Leu	Arg	Thr	Gln	Thr	Phe
	1580					1585					1590			
Asp	Ser	Glu	Lys	Gln	Asp	Ile	Lys	Asn	Phe	Phe	Pro	Pro	Leu	Phe
	1595					1600					1605			
Lys	Ile	Asn	Gly	Asn	Asp	Met	Ala	Phe	Pro	Tyr	Leu	Tyr	Pro	Trp
	1610					1615					1620			
Leu	Tyr	Pro	Gln	Gln	Lys	Gln	Asp	Asp	Asn	Thr	Leu	Gln	Ile	Arg
	1625					1630					1635			
Gln	Leu	Phe	Glu	Gln	Gln	Leu	Gln	Phe	Met	Gln	Gln	Arg	Tyr	Glu
	1640					1645					1650			
Asn	Glu	Leu	Asn	Glu	Leu	Arg	Arg	Gln	Arg	Asn	Leu	Leu	Glu	Lys
	1655					1660					1665			
Lys	Leu	Asp	Gln	Ile	Gln	Leu	Glu	Ser	Gln	Leu	Asn	Asn	Lys	Gln
	1670					1675					1680			
Ser	Glu	Phe	Ser	Lys	Val	Glu	Ser	Met	Met	Glu	Lys	Leu	Leu	Glu
	1685					1690					1695			
Lys	Thr	Glu	Ser	Arg	Leu	Asn	Asp	Phe	Asp	Gln	Lys	Ile	Asn	Tyr
	1700					1705					1710			

Leu Thr Lys Lys Val Asn Gln His Asn Thr Tyr Gln Pro Ser Ser
 1715 1720 1725
 Tyr Gln Pro Thr Pro Ser Tyr Gln Asp Ser Asp Lys Gln Gln Leu
 1730 1735 1740
 Leu Phe Arg Ile Gln Glu Leu Glu Lys Gln Asn Leu Phe Gln Gln
 1745 1750 1755
 Gln Phe Gln Pro Ala Pro Ala Val Val Gln Gln Pro Thr Ser Phe
 1760 1765 1770
 Ala Ala Pro Asn Ile Thr Lys Gln Gln Gln Ile Ala Gln Leu Asn
 1775 1780 1785
 Ala Glu Ile Asn Asn Ile Lys Arg Leu Ile Ala Gln Lys Ala Ala
 1790 1795 1800
 Ser Lys
 1805

<210> 74
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 <212> PRT
 <213> M. genitalium

<220>
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 <223> hypothetical protein

<220>
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 <223> gi|1045811

<400> 74

Met Gln Tyr Ser Ala Leu Ile Pro Leu Phe Ile Leu Leu Ile Ser Leu
 1 5 10 15
 Val Leu Phe Cys Phe Ser Phe Arg Lys Asn Gln Ser Glu Asn Gln Ile
 20 25 30
 Val Lys Ile Leu Phe Phe Ala Tyr Cys Ile Asp Phe Leu Ala Leu Ile
 35 40 45
 Leu Ala Val Met Leu Leu Thr Phe Leu Ser His Gly Leu Leu Ser Leu
 50 55 60
 Ala Ile Leu Ile Pro Val Leu Val Phe Gln
 65 70

<210> 75
 <211> 1033

<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> MG328 homolog

<220>
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<223> gi|1674046

<400> 75

Met Glu Phe Leu Glu Gln Glu Gly Gln Glu Val Leu Thr Lys Glu Ile
1 5 10 15

Lys Ala Gly Phe Cys Glu Ile Thr Pro Ser Ser Ile Thr Glu Gln Thr
20 25 30

Thr Lys Pro Gln Leu Asp Glu Thr Gln Leu Val Asp Glu Tyr Val His
35 40 45

Thr Lys Glu Leu Glu Thr Thr Pro Ile Pro Ile Ser Phe Ala Thr Lys
50 55 60

Glu Val Leu Phe Glu Glu Val Phe Asn Thr Pro Ser Thr Gln Gln Val
65 70 75 80

Asp Glu Ser Val Leu Val Asn Glu Tyr Ile Glu Leu Thr Gln Gln Ile
85 90 95

Lys Asn Ala Ser Glu Gln Val Ser Ser Asn His Thr His Lys Phe Ser
100 105 110

Val Ala Thr Glu Pro Ala Ala Thr Lys Ala Val Ser Glu Thr Met Leu
115 120 125

Leu Asp Asp Tyr Val Glu Met Val Glu Gln Asp Val Gln Ala Gln Thr
130 135 140

Ala Leu Pro Gln Ala Ala Leu Asp Pro Thr Val Ser Leu Thr Phe Ser
145 150 155 160

Ser Pro Ile Asp Ser Asn Ala Ile Leu Val Tyr Pro Glu Met Lys Val
165 170 175

Pro His Val Phe Asp Thr Val Ala Pro Thr Thr Thr Thr Val Pro Leu
180 185 190

Asp Gln Thr Gln Leu Leu Asp Glu Leu Val Glu Val Pro Val Leu Thr
195 200 205

His Thr Val Thr Pro Ala Pro Leu Gln Pro Lys Ala Ala Pro Thr Asn

210				215				220							
Phe 225	Ala	Leu	Asp	Gln	Thr	Gln	Leu	Val	Asp	Glu	Leu	Val	Thr	Val	Pro 240
				230				235							
Leu	Thr	His	Thr	Leu	Val	Asn	Glu	Ser	Ala	Pro	Val	Thr	Pro	Val	Val
				245				250				255			
Val	Thr	Ser	Pro	Ala	Ala	Glu	His	Ser	Phe	Ser	Ile	Thr	Thr	Val	Asp
				260				265				270			
Lys	Ala	Asn	Leu	Thr	Asn	Ala	Leu	Ser	Gln	Thr	Val	Val	Ile	Lys	Pro
				275				280				285			
Ala	Glu	Asp	Ser	Ala	His	Gln	Ser	Ala	Val	Leu	Asp	Lys	Glu	Ile	Ala
				290				295				300			
Thr	Lys	Gln	Ala	Gln	Leu	Gln	Gln	Leu	Gln	Ala	Gln	Ile	Glu	Leu	Arg
				305				310				315			
Gln	Ala	Gln	Leu	Glu	Thr	Pro	Pro	Val	Thr	Tyr	Met	Gly	Val	Glu	Glu
				320				325				330			
Tyr	Lys	Leu	Leu	Pro	Val	Gln	Asp	Val	Val	Pro	Val	Gln	Pro	Thr	Val
				335				340				345			
Ser	Phe	Glu	Met	Thr	Leu	Leu	Gln	Glu	Gln	Leu	Asp	Lys	Ala	Leu	Lys
				350				355				360			
His	Asn	Ala	Ala	Leu	Gln	Ile	Gln	Leu	Glu	Glu	Gln	Leu	Ala	Lys	Pro
				365				370				375			
Leu	Gln	Tyr	Asp	Gln	Ser	Pro	Val	Leu	Gln	Glu	Arg	Ile	Glu	Leu	Leu
				380				385				390			
Gln	Asn	Gln	Asn	Thr	Asn	Leu	Thr	Gln	Glu	Leu	Asn	Glu	Leu	Gln	Gln
				395				400				405			
Lys	Leu	Phe	Lys	Ser	Gln	Asn	Asn	Ser	Leu	Leu	Leu	Ala	Arg	Leu	Glu
				410				415				420			
Glu	Glu	Asn	Arg	Thr	Leu	Lys	Gln	His	Leu	Gln	Asn	Asn	Leu	Pro	Glu
				425				430				435			
Ala	Asn	Gln	Leu	Asn	Phe	Val	Leu	Glu	Lys	Gln	Leu	Glu	Gln	Leu	Gln
				440				445				450			
Gln	Asp	Lys	His	Ser	Leu	Thr	Leu	Gln	Ile	Glu	Gln	Tyr	Lys	Phe	Asp
				455				460				465			
Ser	Lys	Lys	His	Gln	Glu	Gln	Leu	Ala	Leu	Ile	Pro	Ser	Leu	Arg	Ser
				465				470				475			
Glu	Ile	Asn	Ser	Leu	Glu	Thr	Glu	Val	Ile	Ser	Leu	Lys	Gln	Thr	Asn
				475				480				485			
				485				490				495			
				500				505				510			

Gln Arg Leu Ser Leu Ile Glu Arg Glu Asn Asn Phe Leu Lys Thr Glu
515 520 525

Ile Lys Gln Leu Arg Glu Thr Lys Leu Asn Asp Glu Asn Thr Lys Tyr
530 535 540

Arg Asn Leu Leu Lys Gln Tyr Glu Leu Met Arg Ala Asp Ser Asp Ala
545 550 555 560

Lys Leu Lys Glu Leu Glu His Glu Gln His Leu Ala His Gln His His
565 570 575

Gln Glu Gln Leu Ala Gln Leu Gln Arg His Asn Glu Ala Leu Val Lys
580 585 590

Glu Leu Asp Gln Val Lys Ala Thr Asn Phe Glu Leu Gly Leu Ala Ala
595 600 605

Gln Gly Phe Glu Gln Gln Lys Val Val Leu Glu Gln Lys Asn Ser Ser
610 615 620

Leu Leu Ala Ser Leu Gln Ala Ala Glu Glu Asn Val Gln Ala Leu Gly
625 630 635 640

Ile Thr Asn Ser Glu Leu Gln Asn Gln Leu Asn Val Leu Glu Phe Thr
645 650 655

His Lys Glu Lys Thr Ala Phe Asp Ser Lys Thr Leu Thr Leu Thr Lys
660 665 670

Gln Gln Leu Glu Gln Thr Gln Phe Asp Leu Ser Leu Thr Gln Glu Gln
675 680 685

Leu Ala Thr Phe Lys Gln Gln Asn Gln Ser Leu Thr Asp Lys Leu Met
690 695 700

Ala Ser Glu Thr Gln Leu Asn His Leu Gln Gln Ser Asp Glu Asn Leu
705 710 715 720

Thr Gln Leu Gln Thr Gln His Glu Leu Leu Gln Glu Ser Tyr Asn Lys
725 730 735

Leu Gln Asp Glu Ala Asn His Thr Gln Gln Gln Phe His Gln Ala Gln
740 745 750

Asn Glu Leu Asp Ala Ala His Gln Gln Leu Ala Leu Phe Lys Gln Asn
755 760 765

Asn Glu Glu Leu Thr Asp Lys Cys Ser Asn Ile Gln Asn Glu Leu His
770 775 780

Asp Leu Asn Arg Val Lys Thr Asn Trp Glu Asn Leu Asn Thr Glu His
785 790 795 800

Asn Leu Leu Gln Asp Lys Tyr Ala Gln Gln Lys Glu Gln Met Gln His
805 810 815

Glu His Ser Asn Leu Ala Gln Ile Gln Ala Glu His Glu Leu Leu Gln
820 825 830

Glu Ser Tyr Asn Lys Val Lys Ala Glu Leu Asn Glu Ile Gln Ile Thr
835 840 845

Asn Leu Asn Glu Ala Asn Ala Gln Tyr Gln Asp Leu Leu Ser Ala Tyr
850 855 860

Glu Leu Leu Gln Ser Asn His Asn Lys Leu Lys Gln Glu Leu Gln Val
865 870 875 880

Leu Asn Gln Val Asn Leu Glu Lys Gln Gln Leu Ala Gln Lys Leu His
885 890 895

Asn Thr His Gln Ser Leu Ser Gln Thr His Ala Glu Leu Thr Gln Leu
900 905 910

Gln Ala Ala Tyr Asn Asn Leu Gln Ala Thr Pro Pro Val Ser Asp Glu
915 920 925

Leu Leu Glu Gln Phe Asn Gln Val Gln Leu Glu Lys Gln Arg Leu Leu
930 935 940

Gln Gln Asn Leu Ala Leu Val His Glu Leu Gln Tyr Phe Asn Glu Leu
945 950 955 960

Asn Ser Ser Gln Thr His Glu Ile Lys Thr Lys Gln Asp Glu Thr Val
965 970 975

Lys Glu Val Ile Ile Val Glu Lys Glu Ile Pro Val Pro Pro Glu Lys
980 985 990

Lys Pro Arg Leu Lys Lys Arg Asp Ile Val Ile Glu Asn Lys Glu Asp
995 1000 1005

Ala Leu Gly Lys Leu Ser Lys Lys Glu Arg Ile Gln Ala Tyr Ala
1010 1015 1020

Glu Arg Leu Ala Lys Ile Asn Gly Lys Gln
1025 1030

<210> 76
<211> 22
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> A05_orf139 Protein

<220>
<221> misc_feature
<223> gi|1673719

<400> 76

Met Arg Trp Cys Arg Gly Ser Pro Tyr His Trp Asn Leu Asp Arg Arg
1 5 10 15

Asn Pro Asp Phe Pro Ala
20

<210> 77
<211> 103
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> B01_orf103b Protein

<220>
<221> misc_feature
<223> gi|1673772

<400> 77

Met Ser Ser Val Phe Ser Lys Pro Asn Leu Lys Arg Pro Ser Phe Asp
1 5 10 15

Val Lys Asn Leu Thr Lys Pro Ser Arg Leu Leu Ser Ala Thr Leu Arg
20 25 30

Ser Ser Cys Ala Phe Leu Ser Ser Ala Ser Phe Phe Ala Cys Ser Leu
35 40 45

Cys Phe Phe Cys Cys Ser Ser Ile Ser Phe Cys Ser Leu Ala Ser Ser
50 55 60

Ser Ala Arg Leu Arg Tyr Ser Ser Ser His Ser Phe Phe Cys Trp Val
65 70 75 80

Leu Phe Ser Arg Ser Gly Leu Ala Tyr Ser Ser Ser Asn Leu Ser Ser
85 90 95

Lys Ser Ser Arg Leu Arg Ser
100

<210> 78
<211> 112
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> VXpSPT7_orf112 Protein

<220>
<221> misc_feature
<223> gi|1674374

<400> 78

Met Ile Asp Arg Phe Phe Trp Ser Ile Leu Ser Phe Leu Leu Thr Asn
1 5 10 15
Leu Val Phe Leu Phe Val Ala Phe Leu Ile Leu Ile Ile Tyr Leu Ile
20 25 30
Ser Glu Ile Thr Gln Gln Phe Ala Phe Ala Phe Ile Ala Thr Ile Val
35 40 45
Phe Ile Ile Phe Tyr Asn Ile Leu Phe Leu Ser Tyr Leu Leu Thr Met
50 55 60
Tyr Ile Lys Gly Leu Lys Gln Ile Glu Gln Lys Ser Arg Tyr Leu Leu
65 70 75 80
Leu Val Leu Asp Val Lys Ala Asp Glu Leu Leu Pro Phe Ser Phe Leu
85 90 95
Gly Ser Leu Arg Lys Ser His Met Leu Glu Glu Met Leu Leu Glu Gln
100 105 110

<210> 79
<211> 147
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> B01_orf147 Protein

<220>
<221> misc_feature
<223> gi|1673775

<400> 79

Met Pro Ser Ser Ala Phe Lys Ile Asn Leu Ser Val Ser Pro Trp Phe
1 5 10 15
Phe Cys Ser Thr Trp Ser Ser Leu Ile Cys Trp Pro Trp Thr Ile Thr

20	25	30
Thr Ser Val Ser Arg Ser Thr Leu Ser Ser Thr Thr Trp Ile Leu Trp		
35	40	45
Thr Trp Leu Phe Asn Ser Val Ser Ile Phe Val Ser Arg Trp Ser Phe		
50	55	60
Asp Phe Leu Tyr Ser Leu Asn Ser Leu Arg Val Thr Tyr Ser Val Phe		
65	70	75
Thr Gly Ile Thr Gly Leu Leu Ser Leu Asn Cys Leu Leu Lys Leu Pro		
85	90	95
Glu Asn Ser Thr Leu Leu Leu Ser Leu Ser Ile Ile Tyr Gln Pro Glu		
100	105	110
Lys Val Pro Phe Trp Ser Phe Ser Pro Cys His Glu Ile Leu Phe Arg		
115	120	125
Tyr Lys Thr Glu Phe Ser Leu Ser Leu Ser His Thr Ser Phe Leu Phe		
130	135	140
Ser Glu Ile		
145		
<210> 80		
<211> 217		
<212> PRT		
<213> M. tuberculosis		
<220>		
<221> misc_feature		
<223> hypothetical protein Rv3611		
<220>		
<221> misc_feature		
<223> gi 2113965		
<400> 80		
Met Ala Ile Ala Asn Pro Ala Glu Pro Gly Ala Ala Gly Arg His His		
1	5	10
Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro		
20	25	30
Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala		
35	40	45
Ala Gly Arg His His Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp		
50	55	60

Arg Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr
65 70 75 80

Pro Glu Pro Gly Ala Ala Gly Arg His His Gln Pro Arg Gly Asp Arg
85 90 95

Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg
100 105 110

Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala Ala Gly Arg His His Gln
115 120 125

Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro Gln
130 135 140

Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala Ala
145 150 155 160

Gly Arg His His Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg
165 170 175

Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro
180 185 190

Glu Pro Gly Ala Ala Gly Arg His Trp Leu Asp Gln Arg Pro Val Val
195 200 205

Pro Asp Gly Val Gly Lys Ser Asp Ser
210 215

<210> 81
<211> 27
<212> PRT
<213> M. tuberculosis

<220>
<221> misc_feature
<223> hypothetical protein Rv1572c

<220>
<221> misc_feature
<223> gi|2117265

<400> 81

His Gly Gln Pro Arg Thr Asn Thr Phe His His His Glu Lys Leu Leu
1 5 10 15

Arg His Asn Asp Glu Asp Asn His Asp Asp Pro
20 25

<210> 82
<211> 73

<212> PRT
 <213> M. tuberculosis
 <220>
 <221> misc_feature
 <223> hypothetical protein Rv0378

<220>
 <221> misc_feature
 <223> gi|2909499

<400> 82

Met Ser Gly Arg Trp Glu Ala Gly Asn Ala Asp Gly Asn Gly Gly Ser
 1 5 10 15
 Ala Gly Leu Ile Gly Ser Gly Gly Ala Gly Gly Asp Gly Gly Ser Gly
 20 25 30
 Gly Ala Thr Gly Ala Gly Gly Glu Gly Gly Asp Ala Gly Ala Ser Gly
 35 40 45
 Ser Ile Asn Gly Asn Ala Gly Asp Pro Gly Asn Ser Gly Glu Arg Gly
 50 55 60
 Ala Val Gly Lys Pro Gly Ala Pro Gly
 65 70

<210> 83
 <211> 47
 <212> PRT
 <213> N. meningitis MC58
 <220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|7225315

<400> 83

Met Glu Trp Ala Glu Asn Glu Thr Val Lys Leu Ala Gln Lys Trp Glu
 1 5 10 15
 Gln Glu Gln Lys Lys Gln Gln Ile Gln Gln Lys Lys Glu Thr Glu Lys
 20 25 30
 Ser Pro Lys His Lys Ala Ser Arg Asp Asp Trp Glu Met Glu Arg
 35 40 45

Met Lys Lys Ser Leu Phe Ala Ala Ala Leu Leu Ser Leu Val Leu Ala
 1 5 10 15
 Ala Cys Gly Gly Glu Lys Ala Ala Glu Ala Pro Ala Ala Glu Ala Pro
 20 25 30
 Ala Ala Glu Ala Pro Ala Thr Glu Ala Pro Ala Ala Glu Ala Pro Ala
 35 40 45
 Ala Glu Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu Ala Ala Ala Thr
 50 55 60
 Glu Ala Pro Ala Ala Glu Ala Ala Ala Thr Glu Ala Pro Ala Ala Glu
 65 70 75 80
 Ala Ala Ala Thr Glu Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu Ala
 85 90 95

Ala Lys

<210> 86
 <211> 34
 <212> PRT
 <213> N. meningitis MC58
 <220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|7227030

<400> 86

Met Pro Trp Lys Ile Ser Thr Thr Thr Asn Leu Thr Pro Val Pro Ser
 1 5 10 15
 Ala Asn Leu Ser Ala Leu Pro Thr Thr Arg Cys Thr Thr Pro Pro Pro
 20 25 30

Thr Pro

<210> 87
 <211> 114
 <212> PRT
 <213> N. meningitis MC58
 <220>
 <221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|7227104

<400> 87

Met Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro
1 5 10 15

Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly
20 25 30

Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser
35 40 45

Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro
50 55 60

Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly
65 70 75 80

Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Pro
85 90 95

Ser Phe Pro Arg Arg Arg Glu Ser Arg Pro Val Gly Ala Glu Thr Tyr
100 105 110

Arg Val

<210> 88

<211> 120

<212> PRT

<213> N. meningitis MC58

<220>

<221> misc_feature

<223> hypothetical protein

<220>

<221> misc_feature

<223> gi|7226645

<400> 88

Met Ile Ala Lys Ser Leu Phe Phe Arg Cys Gln Lys Ile Tyr Phe Ile
1 5 10 15

Tyr Phe Ile Leu Phe Ile Cys Leu Tyr Leu Asn Ile Ser Tyr Asp Gly

20	25	30
Glu Ile Phe Ile Tyr Phe Ile Ile Asn Phe Thr His Leu Leu Ile Cys		
35	40	45
His Gly Ile Leu Leu Val Phe Cys Arg Ile Phe Pro Tyr Glu Asn Ile		
50	55	60
Pro Phe Thr Ile Phe Leu Asn Phe Ile Ser Leu Phe Leu Ile Phe Leu		
65	70	75
Pro Leu Ile Phe Thr Ile Arg Glu Leu Ile Asp Ser Tyr Tyr Ile Glu		
85	90	95
Ser Ile Ile Asn Leu Phe Leu Ile Leu Ile Pro His Val Ile Phe Leu		
100	105	110
Ile Tyr Leu Lys Gly Lys Gln Ile		
115	120	

<210> 89
 <211> 78
 <212> PRT
 <213> Pseudomonas aeruginosa

 <220>
 <221> misc_feature
 <223> AE004587_5 hypothetical protein

<220>
 <221> misc_feature
 <223> gi|9947556

<400> 89

Met Lys Lys Thr Val Thr Leu Ala Leu Leu Ala Ala Ser Leu Gly	
1	15
Leu Ala Ala Cys Asp Lys Lys Glu Glu Asp Lys Ala Ala Ala Pro Ala	
20	30
Ala Pro Ala Thr Glu Thr Gln Pro Ser Ala Pro Ala Thr Pro Pro Ala	
35	45
Glu Pro Ser Ala Pro Ala Pro Ser Ser Asp Thr Pro Ala Thr Pro Gln	
50	60
Thr Pro Ala Pro Thr Pro Glu Gln Pro Gln Gln Asn Gln Gln	
65	75

<210> 90
 <211> 52
 <212> PRT

Gln Leu Gln Arg Gln Gln Gln Asn Leu Gln Arg Gln Arg Gln Gln Arg
65 70 75 80

Gln Met Gln Asp Asn Leu Ile Arg Gln Gln Gln Leu Asp Gln Gln Arg
85 90 95

Trp Arg Leu Glu Gln Asp Gln Arg Arg Leu Asp Ser Glu Arg Arg Gln
100 105 110

Leu Glu Asn Arg Arg Arg Gln Ser Gln Ser Pro Ala Ile Arg
115 120 125

<210> 92

<211> 101

<212> PRT

<213> Pseudomonas aeruginosa

<220>

<221> misc_feature

<223> AE004643_2 hypothetical protein

<220>

<221> misc_feature

<223> gi|9948180

<400> 92

Met Ser Ala Asp Glu Lys Arg Ile Arg Glu Phe Ala Tyr Gln Ile Trp
1 5 10 15

Glu Ser Glu Gly Cys Pro Asp Gly Gln Ala Glu Arg His Trp Ala Met
20 25 30

Ala Arg Gln Leu Ala Glu Ala Glu Ala Ala Ala Ala Pro Lys Lys
35 40 45

Thr Arg Gly Arg Ala Lys Ala Ala Lys Glu Thr Pro Ala Leu Leu Gln
50 55 60

Ala Pro Ala Ala Lys Pro Arg Lys Pro Arg Ala Ala Ser Pro Ala Arg
65 70 75 80

Pro Ala Ser Glu Lys Pro Ala Ala Ala Lys Pro Arg Ser Arg Arg Lys
85 90 95

Pro Glu Ala Gly Glu
100

<210> 93

<211> 521

<212> PRT

<213> R. prowazekii

<220>
 <221> misc_feature
 <223> unknown

<220>
 <221> misc_feature
 <223> gi|3860652

<400> 93

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Met Lys Lys Glu Ile Leu Ser Lys Gln Gly Asn Ile Leu Glu Gln Leu
1          5          10          15

Lys Phe Ile Asn Ala Asn Thr Glu Ile Leu Thr Glu His Ser Lys Ala
          20          25          30

Ile Leu Lys Asp Lys Leu Lys Glu Leu Ser Lys Gln Leu Asp Glu Ile
          35          40          45

Ser Ser Asn Lys Leu Val Gly Phe Ile Leu Asp Glu Asn Lys Ile Asn
          50          55          60

Thr Asn Phe Lys Asn Val Pro Phe Ser Glu Lys Lys Val Arg Glu Gln
65          70          75          80

Val Asn Asn Leu Asn Asn Lys Ile Leu Glu Lys Ile Phe Leu Lys Asp
          85          90          95

Asp Gly Thr Ile Thr Glu Gln Asp Leu Thr Lys Ile Leu Gln Lys His
          100          105          110

Lys Glu Thr Val Leu Ile Lys Asn Leu Thr Lys Ala Ile Val Tyr Ile
          115          120          125

Asp Gly Asn Lys Asn Asn Glu Thr Val Asn Lys Thr Leu Glu Lys Cys
          130          135          140

Leu Glu Glu Thr Thr Pro Glu Gln Gln Gly Met Ile Leu Asp Val Leu
145          150          155          160

Thr Asn Asn Thr Arg Ile Arg Lys Ala Leu Ile Thr Lys Ile Glu Arg
          165          170          175

Glu Gln Arg Gln Glu His Asn Gln Lys Leu Asn Lys Asn Ile Ala Gly
          180          185          190

Asp Thr Phe Val Asp Ala Leu Lys Lys Ala Leu Val His Arg Thr Ser
          195          200          205

Asn Pro Glu Thr Ile Gln Lys Ser Leu Glu Arg Arg Lys Lys Glu Thr
          210          215          220

Pro Lys Asn Leu Asn Val Trp Asp Arg Ile Ser Gln Asn Ile Pro Asn

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225		230		235		240
Leu Asn Asn Gln Asn Asp Asn Gln Asn Gly Gln Asp Glu Asn Asn Lys						
	245			250		255
Glu Trp Glu Glu Ser Asn Gln Asn Ala Asp Tyr Leu Asn Asn Thr Asn						
	260			265		270
Ile Tyr Arg Ile Thr Lys Ala Lys Gln Asp Leu Glu Lys Ala Val Lys						
	275			280		285
Glu Thr Ile Asn Lys Phe Ser Ala Met Ser Thr Leu Ile Lys Asp Asn						
	290			295		300
Thr Ile Lys Asn Thr Met Ala Tyr Gln Lys Tyr Leu Lys Gly Ala Glu						
305		310		315		320
Asp Gln Leu Ala Leu Ala Lys Glu Lys Gly Lys Glu Leu Ile Glu Asn						
	325			330		335
Ser Val Gln Thr Phe Lys Ile Ile Pro Lys Lys Tyr Gln Asp Asp Met						
	340			345		350
Asn Glu Asn Trp Gln Asn Tyr Leu Ser Pro Glu Glu Ile Ile Glu Leu						
	355			360		365
Thr Ala Leu Asn Glu His Thr Asn Thr Leu Thr Ser Asn Lys Asn Lys						
	370			375		380
Ser Gly Tyr Phe Thr Ser Thr Ala Glu Ala Leu Gln Cys Lys Thr Lys						
385		390		395		400
Gln Gln Glu Tyr Tyr Thr Leu Leu Ser Lys Leu Lys Lys Ile Gly Ile						
	405			410		415
Glu Lys Gln Gln Lys Lys Leu Val Lys Asp Tyr Val Asp Glu Met Ile						
	420			425		430
Thr Asn Ala Lys Gln Ala Val Lys Lys Ile Glu Arg Thr Leu Glu Lys						
	435			440		445
Val Asn Gln Lys Lys Glu Asn Lys Tyr Glu Phe Ser Glu Ser Ser Ala						
	450			455		460
Leu Ile Ser Lys Glu Ile Leu Asp Ala Gln Ala Arg Leu Glu Asn Ala						
465		470		475		480
Lys Gln Lys Ile Glu Phe Ile Lys Leu Lys Gln Ile Ile Ser Asp Lys						
	485			490		495
Arg Gln Val Asn Ser Ser Asp Glu Asp Ser Asp Asp Asp Ser Lys Lys						
	500			505		510
Lys Cys Asn Gln Thr Lys Ser Arg Thr						
	515			520		

<210> 94
 <211> 143
 <212> PRT
 <213> R. prowazekii

<220>
 <221> misc_feature
 <223> unknown

<220>
 <221> misc_feature
 <223> gi|3860651

<400> 94

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Met Lys Ile Gln Met Met Ile Leu Lys Lys Asn Ala Ile Lys Leu Lys
1          5          10          15

Val Glu Leu Glu Asn Ala Gln Lys Asp Ile Asn Gln Ala Lys Lys Asn
          20          25          30

Leu Glu Asn Ala Glu Ala Lys Asn Glu Ala Leu Gln Arg Gln Ile Ile
          35          40          45

Leu Asn His Asn Gln Asn Glu Val Asn Ser His Thr Thr Lys Asn Gln
          50          55          60

Glu Lys Phe Lys Thr Asp Asn Val Thr Glu Glu Tyr Leu Glu Asp Met
65          70          75          80

Ala Leu Met Phe Lys Asn Ser Glu Asp Thr Ala Glu Gln Lys Glu Glu
          85          90          95

Val Asn Cys Gln His His Glu Glu Gln Asn Arg Gln Lys Gln Glu His
          100          105          110

Ile Asn Thr Glu Glu Glu Ala Val His Lys Glu Lys Ile Ile His Ile
          115          120          125

Thr Glu Glu Thr Glu Thr Glu Ala Phe Lys Lys Glu Ile Asp Leu
          130          135          140

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<210> 95
 <211> 369
 <212> PRT
 <213> T. pallidum

<220>
 <221> misc_feature
 <223> conserved hypothetical protein

<220>
<221> misc_feature
<223> gi|3322751

<400> 95

Met Cys Gln Lys Ser Ser Pro Cys Thr Tyr Ala Arg Val Arg Ser Leu
1 5 10 15
Pro Ser Val Arg Leu Phe Ser Phe Leu Ala Leu Ala Phe Ala Ser Phe
20 25 30
Leu Arg Ala Glu Asp Ala Phe Asp His Phe Arg Glu Gly Glu Arg Leu
35 40 45
Leu Ser Leu Gln Gln Ala Gln Gln Ala Ile Gly Pro Leu His Lys Ala
50 55 60
Ala Gln Gln Lys Pro Ala His Pro Lys Ala Ala Leu Tyr Leu Gly Met
65 70 75 80
Ala Tyr Leu Gln Thr Gly Arg Tyr Thr Gln Ala Ile Gln Trp Leu Gln
85 90 95
Asn Pro Pro Val His Ser Gln Glu Tyr Ala His Leu Tyr Ala Tyr Asn
100 105 110
Leu Gly Asn Val Tyr Phe Val Gln His Arg Tyr Glu Glu Ala Gln His
115 120 125
Ala Tyr Glu Gln Ala Leu Ala Leu Lys His Asp Tyr Pro Pro Ala Leu
130 135 140
Leu Asn Arg Ala Asn Thr Ala Met Lys Arg Gln Ala Tyr Ala His Ala
145 150 155 160
Leu Ala Asp Tyr Lys Lys Tyr Val Ser Gln Asn Pro Thr Ala Ser Gln
165 170 175
His Tyr Glu Val Gln Arg Met Ile Ala Ala Leu Glu Gln Trp Leu Gln
180 185 190
Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
195 200 205
Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
210 215 220
Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
225 230 235 240
Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
245 250 255

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 260 265 270
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 275 280 285
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 290 295 300
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
 305 310 315 320
 Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Phe Glu Ala
 325 330 335
 Leu Lys Arg Ala Leu Arg Leu Lys Gln Ala Glu Asp Ala Arg Thr Leu
 340 345 350
 Ser Thr Gly Ser Glu Asp Thr Val Pro Tyr Gln Glu Glu His Asn Leu
 355 360 365

Glu

<210> 96
 <211> 41
 <212> PRT
 <213> T. pallidum
 <220>
 <221> misc_feature
 <223> predicted coding region TP0266

<220>
 <221> misc_feature
 <223> gi|3322546

<400> 96

Met Val Arg Val Gln Arg Arg Val Leu Lys Asn Phe Met Arg Val Val
 1 5 10 15
 Gly Val Asp Lys Gly Tyr Arg Leu Trp Val Glu Trp Leu Ser Cys Val
 20 25 30
 Cys Cys Gly Tyr Val Val Arg Ala Glu
 35 40

<210> 97
 <211> 38
 <212> PRT
 <213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9654409

<400> 97

Met Ser Lys Gln Glu Met Lys Lys Pro Gln Leu Ser Leu Lys Glu Lys
1 5 10 15
Arg Lys Leu Lys Gln Glu Lys Ala Gln Glu Ser Ser Val Ile Lys Pro
20 25 30
Arg Lys Ser Lys Gly Arg
35

<210> 98
<211> 85
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9654544

<400> 98

Met Phe Leu Ser Phe Ile Cys Phe Tyr Ile Phe Lys Asn Gly Ser Tyr
1 5 10 15
Phe Ser Phe Ile Cys Leu Val Gly Cys Phe Gln Phe Phe Asp Phe Phe
20 25 30
Val Val Val Phe Ile Gly Phe Leu Phe Leu Phe Cys Ser Phe Gly Leu
35 40 45
Val Asp Phe Ser Phe Phe Tyr Phe Val Leu Ile Val Phe His Leu Phe
50 55 60
Gly Val Asp Leu Leu Ser Trp Phe Gly Trp Trp Gln Val Phe Leu Phe
65 70 75 80
Cys Asn Phe Ile Glu
85

<210> 103
 <211> 34
 <212> PRT
 <213> Vibrio cholerae

 <220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|9657931

<400> 103

Met Gly Lys Ser Met Pro Ile Gln Leu Leu Leu Ser Ile Pro Phe
 1 5 10 15

Leu Leu Asp Ala Ala Thr Pro Ser Arg Leu Gly Ile Lys Ile Leu Ile
 20 25 30

Leu Lys

<210> 104
 <211> 36
 <212> PRT
 <213> Vibrio cholerae

 <220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|9658035

<400> 104

Met Gly Tyr Pro Ser Met Ala Ala Ala Leu His Ala Ala Ala Leu Asn
 1 5 10 15

Ile Ala Leu Asn Ile Gln Leu Asn Ile Ser Met Arg Ala Met Leu Leu
 20 25 30

Ala Phe Leu Glu
 35

<210> 105
 <211> 38

<212> PRT
 <213> Vibrio cholerae
 <220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|9658254

<400> 105

Met Leu Ile Arg Glu Leu Ala Leu Ala Ala Tyr Gln Phe His Arg Tyr
 1 5 10 15
 Phe Lys Ile His Phe Met Phe Gln Phe Lys Val Phe Leu Phe Leu Ala
 20 25 30

Lys Gly Phe Phe Ser Phe
 35

<210> 106
 <211> 35
 <212> PRT
 <213> Vibrio cholerae
 <220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|9656580

<400> 106

Met Lys Leu Asn Asp Leu Asn Lys Lys Pro Leu Val Ile Lys Lys Thr
 1 5 10 15
 Ala Leu Ser Phe Gln Lys Leu Lys Lys Leu Gln Gln Pro Val Lys Lys
 20 25 30

Phe His Phe
 35

<210> 107
 <211> 665
 <212> PRT
 <213> Plasmodium falciparum

<220>
 <221> misc_feature
 <223> hypothetical protein

<220>
 <221> misc_feature
 <223> gi|3845248

<400> 107

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Met Gln Tyr Phe Phe Leu Val Phe Leu Ala Val Leu Ala Lys Gly Phe
1          5          10          15

Leu Arg Asn Lys Glu His Ala Asn Leu Ile Asn Ser Tyr Asn Asp Ile
          20          25          30

Val Glu Asp Ile Asn Ile Lys Lys Glu Glu Lys Ser Ser Ser Glu Pro
          35          40          45

Pro Phe Ile Pro Ile Lys Asn Lys Ile Asp Asn Val His Thr Lys Asn
          50          55          60

Asn Asn Gln Tyr Asn Leu His Asn Asn Lys Ser Asn Lys Thr His Leu
65          70          75          80

Thr Tyr Gly Thr His Thr Ser Phe Leu Gln Asn Cys Thr Ile Asn Asp
          85          90          95

Cys Val Asp Val Asp Asn Lys Asp Ser Glu Ile Asn Asn Ile Thr Lys
          100          105          110

Glu Lys Asp Asp Asn Asn Asn Asn Asn Gly Thr Lys Gln Ile Glu Glu
          115          120          125

Lys Asn Lys Ile Asn Lys Ser Asp Leu His Arg Gln Asn Glu Leu Asn
          130          135          140

Leu Gln Ser Gly Lys Asn Glu Gln Asp Ile Asn Lys Asn Glu Lys Gly
145          150          155          160

Lys Gln Asp Ile Ser Asn Ser Asn Ala Glu Asn Lys Lys Asp Val Lys
          165          170          175

Glu Gly Val Lys Glu Leu Glu Glu Lys Lys Lys Glu Glu Lys Ile Ser
          180          185          190

Asp Asp His Lys Val Glu Glu Asn Lys Lys Ser Asp Asp His Lys Val
          195          200          205

Glu Glu Asn Lys Lys Ser Asp Asp His Lys Val Glu Glu Asn Lys Lys
          210          215          220

Ser Asp Asp His Lys Ile Glu Glu Val Lys Lys Val Glu Glu His Glu

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225		230		235		240
Glu Asp Glu Glu Glu Asp Lys Lys Glu Lys Lys Ser Glu Asn Lys Asn						
	245			250		255
Lys Asp Glu Asn Lys Asp Glu Asn Asp Glu Asp Asn Asp Glu Ile Ser						
	260			265		270
Asp Glu Asp Glu Val Asp Asp Asp Val Glu Glu Asp Lys Asn Glu Asn						
	275			280		285
Asp Asp Ile Asp Asp Asp Lys Lys Glu Thr Asp Lys Thr His Leu Glu						
	290			295		300
Glu Glu Glu Asn Glu Ile Ile Glu Lys Glu Phe Ser Asp Lys Lys Lys						
305		310		315		320
Asn Gly Lys Asn Lys Asp Thr Lys Lys Glu Lys Ser Lys Asp Thr Glu						
	325			330		335
Lys Glu Lys Ser Lys Asp Ile Glu Lys Glu Lys Ser Lys Asp Lys Glu						
	340			345		350
Lys Glu Lys Ser Lys Asp Lys Glu Lys Glu Lys Gly Lys Asp Lys Glu						
	355			360		365
Lys Glu Lys Ser Lys Asp Ile Glu Lys Glu Lys Glu Lys Asp Lys Asp						
	370			375		380
Ile Glu Lys Glu Lys Ser Lys Asp Thr Ala Lys Glu Lys Glu Lys Asp						
385		390		395		400
Lys Asp Ile Glu Lys Glu Lys Ser Lys Asp Met Glu Lys Leu Lys Asn						
	405			410		415
Lys Gln Asn Asp Glu Lys Lys Lys Asp Asp Asn Glu Lys Lys Lys Asn						
	420			425		430
Asp Lys Gln Asp Ile His Asp Asp Asn Asp Asp Glu Asn Asp Met Glu						
	435			440		445
Glu Ile Glu Glu Asn Asp Asp Glu Glu Asp Glu Asp Glu Asp Met Glu						
	450			455		460
Asn Lys Lys Lys Lys Lys Lys Gly Lys Asn Gly Asn Glu Asn Gly Asn						
465		470		475		480
Glu Asn Gly Ser Glu Asn Gly Asn Glu Asn Gly Asn Glu Asn Gly Asn						
	485			490		495
Glu Asn Glu Asn Lys Asn Glu Ser Glu Asn Glu Asn Glu Asn Glu Asn						
	500			505		510
Glu Asn Glu Asn Gly Asn Glu Asn Glu Asn Glu Lys Glu Asn Glu Lys						
	515			520		525

Asp Lys Asn Ile Lys Glu Ile Glu Asn Val Thr Asn Ala Asn Lys Glu
530 535 540

Asn Tyr Glu Lys Ile Asn Lys Asn Ser Glu Ile Thr Ile Thr Lys Ser
545 550 555 560

Asn Ile Asp Ile Tyr Asn Asn Asn Arg Asn Asn Asp Ile Asp Lys Val
565 570 575

Asn Asn His Ile Phe Thr Asn Gln Gln Lys Lys His Asn Leu His Asn
580 585 590

Glu Gln Asn Lys Phe Asn Glu Thr Leu Asn Val Ser Thr Asn His Lys
595 600 605

Asn His Tyr Glu Glu Lys Lys Lys Tyr Glu Ser Asn Met Phe Asn Val
610 615 620

Asp Lys Arg Met His Lys Asn Leu Thr Ser Met Asp Thr Ile Leu His
625 630 635 640

Asn Leu Asn Asp Lys Leu Ser His His Lys Asp Leu Lys Asn Val Leu
645 650 655

Asn Asp Lys Lys Lys Lys Lys Asn Lys
660 665

<210> 108
<211> 807
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<213> Plasmodium falciparum

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<223> hypothetical protein

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<400> 108

Met Ala Val Glu Ser Lys Pro Asn Asn Ser Ser Lys Glu Lys Asn Glu
1 5 10 15

Glu Asn Asp Ile Ile Asn Lys Cys Asp Asp Ser Asn Lys Ile Asn Gly
20 25 30

Lys Glu Asn Ile Phe Ala Val Glu Lys Val Gly Ile Asn Glu Ser Gly
35 40 45

His Met Ser Asn Asp Asn Ile Asn Lys Asn Gln Glu Lys Asn Lys Lys

60

Thr Gln Asn Lys Met Asn Asn Met Lys Thr Lys Gln Ile Gly His Tyr
340 345 350

Gly	Ile	Asn	Asn	Glu	Asp	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Ile	Asn	
		355						360						365		
Asn	Asn	Asn	Asn	Asn	Asn	Ile	Asn	Asn	Asn	Asn	Ile	Asn	Asn	Asn	Asn	
		370				375					380					
Val	Pro	Leu	Cys	Ile	Pro	Gln	Leu	Asp	Asn	Tyr	Asn	Lys	Thr	Lys	Asn	
		385				390				395					400	
Asn	Phe	Asn	Gln	Gly	Thr	Asn	Asn	Phe	Asn	Gln	Gly	Thr	Asn	Asn	Phe	
				405					410						415	
Asn	Lys	Cys	Thr	Asn	Asn	Phe	Asn	Asn	Ala	Lys	Asn	His	Ile	Lys	His	
			420						425					430		
Asn	Ile	Asn	Asn	Thr	Asn	Lys	Asn	Ile	Glu	His	Leu	Asn	Asn	His	Ser	
		435						440						445		
Ile	Tyr	Asn	Phe	Val	Tyr	Pro	Glu	Asn	Lys	Asn	Ile	Tyr	Asp	Ala	Asn	
		450					455						460			
Gly	Asn	Leu	Ile	Asn	Asn	Asn	Ile	Ser	Tyr	Thr	Gln	Leu	Lys	Met	Asn	
		465				470					475				480	
Asn	Asn	Ile	Asn	Phe	Asn	Ile	His	Met	Glu	Ser	Pro	Ile	Asn	Gln	Gln	
				485					490						495	
His	Asn	Asn	Thr	Phe	Lys	Val	Asn	Asn	Asp	Thr	Asn	Phe	Phe	Asn	Glu	
			500						505					510		
Pro	Thr	Asn	Lys	Met	Lys	Lys	Lys	Asn	Lys	Glu	Lys	Lys	Asn	Ile	His	
		515						520						525		
Phe	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Lys	Cys	Leu	Tyr	Lys	Asp	
		530						535				540				
Ile	Asn	Gln	Asn	Asp	His	Asn	Asn	Ser	Ile	Ile	Asn	Thr	Asn	Gln	Asn	
		545				550				555					560	
Phe	Asp	His	Ile	Asn	Asn	Val	Lys	Asn	Thr	Glu	Gln	Asn	Leu	Gln	Lys	
			565						570						575	
Lys	His	Asn	Lys	Met	Ser	Gln	Val	Ser	Lys	Gln	Ser	Asn	Asn	Lys	Asn	
			580						585					590		
Asn	Lys	Asn	Asn	Ser	His	Leu	Lys	Lys	Gln	Ile	Asn	Ile	Asn	Thr	Asn	
		595						600						605		
Asn	Asn	Met	Asp	Asn	Lys	Asn	Asn	Ser	His	Ile	Ser	Lys	Asn	Val	Ile	
		610						615				620				
Val	Asp	Asp	Asn	Lys	Leu	Lys	Ser	Ser	His	Ala	Asp	Asn	Ser	Asn	Glu	
		625				630				635					640	

Ile Val Thr Lys Gly Lys Lys Lys Lys Asn Thr Asn Lys Lys Lys Lys
645 650 655

Ile Asn Asn Ile Asn Ser Val Asn Asn Val Asn Asn Ile Asn Ser Met
660 665 670

Asn Asn Ile Asn Ser Met Asn Asn Ile Ile Ser Met Asn Asn Val Asn
675 680 685

Asn Met Asn Asn Pro Met Tyr Phe Pro Asn Val Asn Ile Gln Lys Asp
690 695 700

Asp Ser Asn Ile Ala Leu Leu Tyr Asn Asn Lys Pro Asn Ile Asp Phe
705 710 715 720

Asn Asn Phe Gln Leu Asn His Ile Asn Asn His Met Ile Gln Asn Asn
725 730 735

Ile Met Thr Asn Asn Val Met Leu Asn Asn Asn Leu Thr Thr Ser Asn
740 745 750

Phe Asn Tyr Asn Leu Ile Asn Tyr Ser Tyr Glu Pro Phe Tyr Glu Glu
755 760 765

Asn Leu Met Asn Asp Leu Asp Tyr Cys Arg Asp Ile Ser Leu Tyr Glu
770 775 780

Lys Arg Tyr Asp Arg Gly Asp Asn Leu Gln Gln Asn His Lys Arg Tyr
785 790 795 800

Asp Ile Asp Phe Pro Ser Leu
805

<210> 109
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<213> Plasmodium falciparum

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<223> hypothetical protein

<220>
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<223> gi|4493994

<400> 109

Met Tyr Glu Leu Leu Leu Leu Arg Phe Leu Lys Tyr Glu Cys Asp Tyr
1 5 10 15

Asp Asp Ser Glu Asp Ile Leu Asn Lys Tyr Cys Phe Ile Arg Glu Arg
20 25 30

Lys	Tyr	Asn	Lys	Pro	Gly	Gly	Asn	Lys	Tyr	Ile	Pro	Arg	Asp	Arg	Ser	35	40	45
Asn	Asn	Asn	Asn	Asn	Ile	Gly	Asn	Asn	Val	Asn	Gly	Met	Asn	Asn	Phe	50	55	60
Val	Leu	Leu	Asn	Asn	Asn	Asn	Asn	Asn	Met	Arg	Ile	Arg	Asn	Thr	Tyr	65	70	75
Asn	Asn	Asn	Asn	Asn	Asn	Ile	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	85	90	95
Asn	Phe	Asn	Asn	Phe	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Asn	Phe	Asn	Asn	100	105	110
Phe	Asn	Asn	Phe	Asn	Asn	Asn	Asn	Asn	Phe	Asn	Asn	Asn	Asn	His	Phe	115	120	125
Asn	Ile	His	Asn	Ile	Asp	Asn	Tyr	Asp	Asp	Ser	Tyr	Val	Lys	Gly	Arg	130	135	140
His	Arg	Gly	Asn	Tyr	Leu	Ser	Ser	Ser	Leu	Asn	Asn	Ile	Asn	Gly	Lys	145	150	155
Val	Phe	Lys	Asn	Leu	Asp	Asp	Asn	Cys	Tyr	Asn	Leu	Pro	Thr	Asn	Asn	165	170	175
Leu	Tyr	Ile	Asp	Lys	Glu	Gly	Lys	Met	His	Leu	Thr	Gly	Lys	Glu	His	180	185	190
Tyr	Asn	Ala	Ala	Ser	Ser	Asn	Glu	Tyr	Asn	His	Asn	Asn	Lys	Asn	Thr	195	200	205
Asn	Asn	Tyr	Asn	Asn	Asn	Ser	Tyr	Asn	Asn	Asn	Asn	Phe	Cys	Asn	Asn	210	215	220
Asn	Tyr	Asn	Asp	Asn	Asn	Tyr	Asn	Asn	Ser	Asn	Asn	Lys	Gly	Met	Gly	225	230	235
Asn	Lys	Tyr	Glu	Arg	Ser	Leu	Asn	Tyr	Leu	Lys	Lys	Glu	His	Asp	Met	245	250	255
Val	Asp	Tyr	Glu	Tyr	Asn	Asn	Lys	Gly	Asn	Ile	Arg	Lys	Asn	Asp	Ser	260	265	270
Glu	Lys	Tyr	Trp	Asp	Asn	Pro	Pro	Leu	His	Tyr	Ser	Lys	Lys	Asn	Asn	275	280	285
Tyr	Asp	Ile	Phe	Thr	Leu	Gly	Asp	Ile	Lys	Lys	Tyr	Ala	Lys	Asn	Asn	290	295	300
Glu	Lys	Lys	Gly	Asn	Asn	Lys	Tyr	Met	Asn	Met	His	Asp	Asn	Asn	Ser	305	310	315

610	615	620
Asp Gly Asn Asn Asn Ser Asn Asn Ser Asn Ser Asn Asn Asn Val Glu		
625	630	635 640
His Tyr Tyr Met Asn Asn Lys Lys Asn Phe Lys Asn Lys Ile Asn Asn		
	645	650 655
Tyr His Asn Leu Pro Asp Asn Lys Asn Asn Met Met Asn Asn Asn Thr		
	660	665 670
Tyr Asn Asn Ile Asn Lys Asn Asn Leu Ser Asn Met Glu Asn Phe Pro		
	675	680 685
Pro Ser Leu Ser Phe Asn Asn Ser Asp Ile Asn Lys Asn Asn Ala Gln		
	690	695 700
Gly Asn Ile Asn Ile Thr Pro Ile Ile Asn Ser Ile Leu Arg Leu Asp		
705	710	715 720
Asn Glu Val Asp Asn Val His Asn Asn Ser Ile Ser Glu Asn Ile Gln		
	725	730 735
Asn Ala Lys Val Ser Asn Val Leu Asp Ser Leu Lys Ser Leu Leu Lys		
	740	745 750
Ala Ser Lys Ser Gln Gly Asn Asn Asn Tyr Asn Ile Pro Lys Asn Phe		
	755	760 765
Asn Asn Asn Asn Asn Asn Asn Asn Asn Ser Lys Phe Ile Asn Tyr Asn		
	770	775 780
Ser Gln Gln Tyr Tyr Pro Ser His Gln Gln Gln Gln Gln His Gln		
785	790	795 800
Gln Gln Gln Gln Gln Gln Gln Gln Gln Thr Leu Ile Gln Thr Gln Ile		
	805	810 815
Asn Ser Thr His Leu Asn Asp Phe Asn Lys Lys Lys Phe Asn Lys Lys		
	820	825 830
Glu Arg Tyr Pro Met Lys Tyr Pro Glu Phe Asp Gly Thr Thr Asn Glu		
	835	840 845
Thr Met Met Val Arg Glu Lys Ala Glu Arg Gln Leu Val		
	850	855 860

- <210> 110
- <211> 54
- <212> PRT
- <213> Plasmodium falciparum
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- <223> Homologue of C.elegans F49C12.11 protein

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Met Pro Leu Asn Thr Gln Gly Gly Lys Lys Lys Pro Leu Lys Ala Ala
 1 5 10 15
 Lys Lys Gly Pro Val Glu Leu Thr Glu Glu Asp Ile Ala Phe Lys Lys
 20 25 30
 Glu Met Ala Glu Lys Lys Lys Ala Glu Glu Glu Ala Lys Gln Lys Leu
 35 40 45
 Leu Lys Ala Lys Lys Lys
 50

<210> 111
 <211> 71
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 <213> L. major
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 <223> hypothetical protein P1105.01

<220>
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 <223> gi|6996498

<400> 111

Met Arg Glu Arg Leu Ser Thr Asp Glu Tyr Val Tyr Trp Ser Gly Ile
 1 5 10 15
 Leu Leu Pro Leu Ile Arg Val Ile Asp Leu Ala Ser Val Asp Ser Pro
 20 25 30
 Leu Ala Leu Ala Leu Arg Ala Cys Val Cys Val Cys Val Cys Val Cys
 35 40 45
 Val Cys Val Cys Val Cys Val Cys Val Val Val Phe Leu Pro Leu Pro
 50 55 60
 Ser Leu Arg Ala Gln Ser Pro
 65 70

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 <211> 923

<212> PRT
 <213> L. major

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 <223> AC005941_2 L5204.2

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 <223> gi|6978417

<400> 112

Met	Gln	Leu	Ser	Gln	Glu	Asp	Glu	Glu	Ala	Ile	Arg	Thr	Leu	Arg	Gly
1				5					10					15	
Glu	Ile	Glu	Ala	Ala	Trp	Ala	Lys	Ala	Asp	Thr	Ala	His	Glu	Gln	Glu
			20					25					30		
Gln	Arg	Ser	Arg	Glu	Leu	Leu	His	Thr	Leu	Arg	Gln	Gln	Val	Thr	Glu
		35					40					45			
Leu	Asp	Ala	Met	Val	Glu	Lys	Thr	Ala	Gly	Leu	Ser	Met	Gly	Gln	Glu
	50					55					60				
Ala	Tyr	Leu	Arg	Asp	Leu	Leu	Thr	Val	Lys	Lys	Asp	Arg	Glu	Glu	Glu
65					70					75					80
Ala	Met	Leu	Leu	His	Ala	Ala	Leu	Asn	Arg	Thr	Glu	Ala	Asp	His	Arg
				85					90					95	
Gln	Val	Cys	Val	Gln	Leu	Ala	Ala	Ala	Lys	Gln	Ala	His	Glu	Ala	Ala
			100					105					110		
Gln	Arg	Glu	Arg	Asp	Glu	Gln	Arg	Gln	Val	Tyr	Gln	His	Leu	Leu	Thr
		115					120					125			
Ser	Leu	Glu	Ala	Glu	Gln	Arg	Glu	Arg	Ala	Ala	Lys	Glu	Ala	Ser	Val
		130				135					140				
Arg	Gln	Tyr	Arg	Asp	Thr	Thr	Glu	Leu	Cys	Met	Arg	Arg	Leu	Asp	Glu
145					150					155				160	
Arg	Gly	Val	Glu	Val	Glu	Arg	Ala	Ile	Arg	Glu	Glu	Lys	Lys	Ala	Ala
			165					170						175	
Lys	Glu	Ala	Glu	Gly	Thr	Ala	Gln	Glu	Ile	Gln	Ala	Ile	Ala	Arg	Gln
		180						185					190		
Leu	Gln	Glu	Arg	Gln	Glu	Arg	Phe	Gly	Val	Glu	Ala	Ala	Arg	Leu	Ala
		195					200					205			
Ala	Ala	Glu	Arg	Glu	Asn	Thr	Ile	Leu	Thr	Arg	Glu	Leu	Pro	Gln	Arg

210		215		220
Gln Ala Ala Leu His Glu Gln Gln Asp Glu Leu Lys Arg Glu Glu Lys				
225		230		240
Gln Leu His Leu Leu Glu Lys Ser Ala Arg Ala Gln Gln Ala Glu Leu				
	245		250	255
Ala Ala Leu Val Glu Lys Arg Ala Thr Ala Ala Ala Val Gln Thr				
	260		265	270
Arg Ala Asn Ser Val Asp Ala Ala Leu Thr Glu Leu Ala Thr Glu Glu				
	275		280	285
Lys Ala Arg Ala Ala Leu Glu Glu Ala Val Ala Lys Glu Met Gln Arg				
	290		295	300
Lys Thr Asn Thr Met His Thr Asn Thr Phe Lys Ala Thr Ala Ser Ser				
305		310		320
Lys Val Glu Gly Gln Arg Val Met Glu Ala Gly Lys Ser Arg Arg Leu				
	325		330	335
His Gln Gln Leu Glu Leu Leu Arg Thr Glu Asn Glu Lys Met Arg Lys				
	340		345	350
Glu Ile Tyr Tyr Ala Glu Gln Asn His Glu Lys Asn Thr Lys Glu Ala				
	355		360	365
Gln Gln Ala Leu Leu Asn Tyr His Arg Thr Leu Asp Ala Ile Arg Thr				
	370		375	380
Arg Arg Ser Glu Ala Lys Ala Val Glu Glu Asp Ile Ala Leu His Gln				
385		390		400
Lys Lys Leu Lys Ala Gln Gln Ala Leu Leu Ser Thr Val Thr Ala Asp				
	405		410	415
Arg Gln Lys Thr Glu Lys Ala Leu Arg Glu Thr Glu Ala Glu Leu Leu				
	420		425	430
Leu Leu Arg Asn Arg His Ala Ser Lys Gln Glu Glu Leu Glu Ser Val				
	435		440	445
Lys Thr Glu Leu Ile Gln Gln Glu Ala Asp Met Cys Gln Leu His Gly				
	450		455	460
Leu Ser Arg Gln Leu Asn Lys Asp Val Ala Asn Thr Glu Gln Arg Leu				
465		470		480
Arg Phe Leu Arg Glu Asp Gln Gln His Ala Glu Ser Arg Val Glu Ala				
	485		490	495
Leu Arg Ser Glu Ala Gln Glu Leu Arg Gln Val Ile Ala Gln Tyr Asp				
	500		505	510

Ser Ala Glu Gln Arg Arg Thr Asn Thr Asp Asp Arg Ser Pro Ser Ala
805 810 815

Gly Gly Pro Ala Ser Ala Asp Val Glu His Arg Ser Ala Ser Gln Pro
820 825 830

Gln Gln Pro His Ser His Ala Gly Gly Ser Ala Ile Val Ser Asn Ser
835 840 845

His Asn Gly Val Gln Ala Ala Ala Ser Gly Thr Gly Arg Met Ser Ala
850 855 860

Ala Asn Ser Gly Arg Val Gly Asn Gly Ser Val Pro Pro Arg Asn Gly
865 870 875 880

Arg Arg Arg Ala Pro Leu Ala Glu Ala Ile Leu Asp Thr Leu Thr Ala
885 890 895

Gly Pro Pro Gln Pro Asn Phe Pro Leu Gln Arg Pro Pro His Gln Arg
900 905 910

Gln Phe Val Gly Gly Gly Phe Ser Leu Thr Arg
915 920

<210> 113

<211> 2354

<212> PRT

<213> L. major

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<223> AC005802_5 L6202.3

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<223> gi|6899670

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Met Ser Thr Pro Val Ser Gly Val Val Pro Gln Asp Arg Trp Gln Pro
1 5 10 15

Gln Gln Arg Val Lys Val Cys Gln Tyr Gln Asp Cys Gly Ala Pro Phe
20 25 30

Gly Phe Phe Ser Thr Lys Val Asn Cys His Arg Cys Gly Ile Val Leu
35 40 45

Cys Ser Lys Cys Ala Ala Thr Lys Thr Val Ile Pro Arg Tyr Tyr Ser
50 55 60

Asn Glu Thr Val Pro Val Cys Gln Arg Cys Tyr Gln Val Val Glu Arg
65 70 75 80

Tyr	Lys	Glu	Arg	Gly	Ser	Val	Thr	Pro	Gly	Tyr	Val	Val	His	Ser	Thr	
				85					90					95		
Thr	Ile	Ser	Ala	Thr	Pro	Ala	Arg	Ser	Ser	Pro	Val	Pro	Pro	Leu	His	
				100					105					110		
Thr	Thr	Pro	Ala	Leu	Arg	Pro	His	Ala	Pro	Ser	Pro	Gln	Pro	Ala	Ser	
				115					120					125		
Val	Val	Ser	Thr	Ala	Thr	Leu	Val	His	Pro	Val	Glu	Glu	Asp	Ala	Val	
				130					135					140		
Ser	Thr	Lys	Pro	Ser	Val	Ser	Glu	Ala	Asp	Leu	His	Ala	Leu	Arg	Ser	
				145					150					155		
Ile	Ile	Glu	Thr	Leu	Gln	Gln	Ala	Leu	Asn	Asp	Glu	Gln	His	Asn	Ala	
				165					170					175		
Ala	Leu	Ala	Ala	Thr	Ser	Ala	Ala	Glu	Gln	Leu	Arg	Thr	Ala	Lys	Glu	
				180					185					190		
Glu	Asn	Thr	Ala	Leu	Lys	Ser	Thr	Ala	His	Leu	Leu	Gln	Gln	Arg	Leu	
				195					200					205		
Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala	Arg	
				210					215					220		
Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	
				225					230					235		
Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	
				245					250					255		
Leu	Glu	Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	
				260					265					270		
Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	
				275					280					285		
Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Val	Ala	Arg	Leu	Ala	
				290					295					300		
Ala	Asp	Gly	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	
				305					310					315		
Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	
				325					330					335		
Ala	Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	
				340					345					350		
Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	
				355					360					365		

Gln Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp
370 375 380

Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln
385 390 395 400

Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln
405 410 415

Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
420 425 430

Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu
435 440 445

Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
450 455 460

Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
465 470 475 480

Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln
485 490 495

Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
500 505 510

Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala
515 520 525

Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
530 535 540

Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu
545 550 555 560

Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu
565 570 575

Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
580 585 590

Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
595 600 605

Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Val Asp
610 615 620

Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln
625 630 635 640

Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln
645 650 655

Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala

660	665	670
Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln		
675	680	685
Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp		
690	695	700
Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg		
705	710	715
Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala		
	725	730
		735
Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn		
	740	745
		750
Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala		
	755	760
		765
Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala		
	770	775
		780
Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp		
785	790	795
		800
Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu		
	805	810
		815
Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu		
	820	825
		830
Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu		
	835	840
		845
Glu Ala Gln Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln		
	850	855
		860
Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala		
865	870	875
		880
Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala		
	885	890
		895
Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg		
	900	905
		910
Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu		
	915	920
		925
Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu		
	930	935
		940
Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg		
945	950	955
		960

Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala	965	970	975
Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu	980	985	990
Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg	995	1000	1005
Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp	1010	1015	1020
Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg	1025	1030	1035
Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn	1040	1045	1050
Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg	1055	1060	1065
Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp	1070	1075	1080
Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln	1085	1090	1095
Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln	1100	1105	1110
Val Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln Gln Leu	1115	1120	1125
Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr	1130	1135	1140
Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala	1145	1150	1155
Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu	1160	1165	1170
Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu	1175	1180	1185
Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg	1190	1195	1200
Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp	1205	1210	1215
Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg	1220	1225	1230

Leu	Ala	Ala	Asp	Gly	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn
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Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg
1250						1255					1260			
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1265						1270					1275			
Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln
1280						1285					1290			
Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln
1295						1300					1305			
Val	Ala	Arg	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu
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Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Arg	Val	Ala
1325						1330					1335			
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1340						1345					1350			
Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln
1355						1360					1365			
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1370						1375					1380			
Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln
1385						1390					1395			
Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala
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Gln	Val	Ala	Arg	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg
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Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Arg	Val
1430						1435					1440			
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1445						1450					1455			
Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln
1460						1465					1470			
Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Val	Ala	Arg	Leu	Ala	Ala	Asp
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1490						1495					1500			
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Ala Arg Val Ala Arg Leu	Ala Ala Asp Gly Asp	Glu Ala Arg Gln
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Gln Leu Ala Ala Asn Ala	Glu Glu Leu Gln Gln	Arg Leu Asp Thr
1535	1540	1545
Ala Thr Gln Gln Arg Ala	Glu Leu Glu Ala Gln	Leu Ala Arg Leu
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Ala Ala Asp Arg Asp Glu	Ala Arg Gln Gln Leu	Ala Ala Asn Ala
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Glu Glu Leu Gln Gln Arg	Leu Asp Thr Ala Thr	Gln Gln Arg Ala
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Glu Leu Glu Ala Arg Val	Ala Arg Leu Ala Ala	Asp Gly Asp Glu
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Ala Arg Gln Gln Leu Ala	Ala Asn Ala Glu Glu	Leu Gln Gln Arg
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Leu Asp Thr Ala Thr Gln	Gln Arg Ala Glu Leu	Glu Ala Arg Val
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Ala Arg Leu Ala Ala Asp	Arg Asp Glu Ala Arg	Gln Gln Leu Ala
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Ala Asn Ala Glu Glu Leu	Gln Gln Arg Leu Asp	Thr Ala Thr Gln
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Gln Arg Ala Glu Leu Glu	Ala Gln Leu Ala Arg	Leu Ala Ala Asp
1670	1675	1680
Arg Asp Glu Ala Arg Gln	Gln Leu Ala Ala Asn	Ala Glu Glu Leu
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Gln Gln Arg Leu Asp Thr	Ala Thr Gln Gln Arg	Ala Glu Leu Glu
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Ala Gln Leu Ala Arg Leu	Ala Ala Asp Gly Asp	Glu Ala Arg Gln
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Gln Leu Ala Ala Asn Ala	Glu Glu Leu Gln Gln	Arg Leu Asp Thr
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Ala Thr Gln Gln Arg Ala	Glu Leu Glu Val Glu	Met Ala Val Leu
1745	1750	1755
Leu Arg Glu Arg Glu Glu	Ala Arg Gly Glu Thr	Ala Val Ala Gly
1760	1765	1770
Glu Gln Val Gln Leu Tyr	Arg Glu Thr Val Glu	Glu Glu Glu Cys
1775	1780	1785

Leu	Lys	Glu	Glu	Arg	Trp	Cys	Leu	Glu	Ser	Arg	Val	Ala	Gln	Leu
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Arg	Glu	Ala	Ser	Ala	Ala	Ala	Lys	Gln	Gln	Arg	Gln	Glu	Val	Ala
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Ala	Lys	Ala	Asn	Glu	Val	Gln	Glu	Arg	Leu	Asp	Ser	Met	Ala	Arg
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Ala	Asp	Leu	Glu	Ala	Arg	Leu	Val	Asp	Glu	Ala	Gly	Asp	Leu	Arg
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Leu	Ala	Leu	Gln	Glu	His	Glu	Ala	Ala	Gln	Asn	Arg	Cys	Thr	Thr
	1925					1930					1935			
Leu	Glu	Ala	Gln	Val	Ala	Ser	Leu	Thr	Ser	Asp	Arg	Asp	Asn	Gly
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Arg	Gln	Gln	Glu	Ser	Ala	Asp	Leu	Ser	Glu	Ala	Gln	Arg	His	Leu
	1955					1960					1965			
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	1985					1990					1995			
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	2030					2035					2040			
His	Arg	Asp	Ala	Glu	Leu	Ile	Ala	Glu	Val	Gly	Glu	Arg	Leu	Arg
	2045					2050					2055			

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Arg Glu	Arg Ala Arg Pro Leu	Glu Arg Val Leu Ala	Glu Lys Leu
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Ile Gly	Asp Arg Arg Thr Ser	Asp Ala Glu Glu Val	Ala Thr Glu
2090	2095	2100	
Pro Thr	Gln Val Arg Arg Asn	Ala Ala His Ser Arg	His Leu Asp
2105	2110	2115	
Ser Arg	Glu Ala Gln Leu Asp	Glu Arg Ala Ala Arg	Leu Arg Glu
2120	2125	2130	
Lys Glu	Gln Gln Leu Leu Arg	Val Ala Arg Glu Leu	Gln Thr Lys
2135	2140	2145	
Ser Arg	Ala Leu Gln Val Leu	Tyr Ala Arg Ala Leu	Asn Arg Pro
2150	2155	2160	
Gln Val	Thr Ser Leu Leu Leu	Thr Ala Asp Gly Asp	Asp Thr Ser
2165	2170	2175	
Tyr Pro	Asp Thr Pro Gln Gln	Gln Gln Gln Gly Thr	Arg Thr Pro
2180	2185	2190	
Leu Arg	Glu Pro Val Tyr Ser	Leu Asp Ser Glu Val	Ala His Tyr
2195	2200	2205	
Gly Arg	Thr Ala Gly Ala Ala	Val Ser Ser Gly Leu	Ala Ser Pro
2210	2215	2220	
Leu Pro	Arg Glu Pro Pro Arg	Ala Arg Met Val His	Arg Ala Val
2225	2230	2235	
Glu Ala	Thr Gly Thr Glu Glu	Asp Thr Gln Val Arg	Leu Thr Ala
2240	2245	2250	
Ala Thr	Glu Ala Tyr Arg Asp	Val Leu Tyr Glu His	Ile Leu Glu
2255	2260	2265	
Ser Asn	Gly Leu Gln Gly Val	Asp Val Leu Ala Gln	Tyr Leu Pro
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His His	Thr Ser Gly Gly Gly	Leu Lys Thr Pro Arg	Leu Pro Gly
2285	2290	2295	
Ser Gly	Ile Ile Ser Lys Thr	Arg Ala Met Leu Arg	Ala Leu Glu
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Glu Arg	Leu Gly Ala Ser Arg	Gly Val Gly Arg Gly	Val Asp Pro
2315	2320	2325	
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2330

2335

2340

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 Gly Phe Phe Ser Thr Lys Val Asn Cys His Arg Cys Gly Ile Val Leu
 35 40 45
 Cys Ser Lys Cys Ala Ala Thr Lys Thr Val Ile Pro Arg Tyr Tyr Ser
 50 55 60
 Asn Glu Thr Val Pro Val Cys Gln Arg Cys Tyr Gln Val Val Glu Arg
 65 70 75 80
 Tyr Lys Glu Arg Gly Ser Val Thr Pro Gly Tyr Val Val His Ser Thr
 85 90 95
 Thr Ile Ser Ala Thr Pro Ala Arg Ser Ser Pro Val Pro Pro Leu His
 100 105 110
 Thr Thr Pro Ala Leu Arg Pro His Ala Pro Ser Pro Gln Pro Ala Ser
 115 120 125
 Val Val Ser Thr Ala Thr Leu Val His Pro Val Glu Glu Asp Ala Val
 130 135 140
 Ser Thr Lys Pro Ser Val Ser Glu Ala Asp Leu His Ala Leu Arg Ser
 145 150 155 160
 Ile Ile Glu Thr Leu Gln Gln Ala Leu Asn Asp Glu Gln His Asn Ala
 165 170 175

Ala Leu Ala Ala Thr Ser Ala Ala Glu Gln Leu Arg Thr Ala Lys Glu
 180 185 190
 Glu Asn Thr Ala Leu Lys Ser Thr Ala His Leu Leu Gln Gln Arg Leu
 195 200 205
 Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
 210 215 220
 Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala
 225 230 235 240
 Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
 245 250 255
 Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
 260 265 270
 Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr
 275 280 285
 Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala
 290 295 300
 Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln
 305 310 315 320
 Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp
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 Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg
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 Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala
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 Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu
 405 410 415
 Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala
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 Gln Val Ala Arg Leu Ala Ala Asn Arg Asp Glu Ala Arg Gln Gln Leu
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 Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln
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 Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala Asp Arg

465		470			475		480
Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln							
	485			490			495
Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val							
	500			505			510
Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala							
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Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg							
	530			535			540
Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asn Ala Glu Glu							
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Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu							
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Ala Gln Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg							
	580			585			590
Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala							
	595			600			605
Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn							
	610			615			620
Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala							
	625			630			635
Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala							
	645			650			655
Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp							
	660			665			670
Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu							
	675			680			685
Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu							
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Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu							
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Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln							
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Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala							
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Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala							
	755			760			765

Asp	Gly	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	
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Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	
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Arg	Val	Ala	Arg	Leu	Ala	Ala	Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	
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	850					855					860					
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Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu
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Gly Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu		
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Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu		
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Ala Gln Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln		
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Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg		
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Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu		
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Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg		
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Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu		
1595	1600	1605

Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr
1610						1615					1620			
Gln	Gln	Arg	Ala	Glu	Leu	Glu	Ala	Gln	Leu	Ala	Arg	Leu	Ala	Ala
1625						1630					1635			
Asp	Arg	Asp	Glu	Ala	Arg	Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu
1640						1645					1650			
Leu	Gln	Gln	Arg	Leu	Asp	Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu
1655						1660					1665			
Glu	Ala	Gln	Leu	Ala	Arg	Leu	Ala	Ala	Asp	Gly	Asp	Glu	Ala	Arg
1670						1675					1680			
Gln	Gln	Leu	Ala	Ala	Asn	Ala	Glu	Glu	Leu	Gln	Gln	Arg	Leu	Asp
1685						1690					1695			
Thr	Ala	Thr	Gln	Gln	Arg	Ala	Glu	Leu	Glu	Val	Glu	Met	Ala	Val
1700						1705					1710			
Leu	Leu	Arg	Glu	Arg	Glu	Glu	Ala	Arg	Gly	Glu	Thr	Ala	Val	Ala
1715						1720					1725			
Gly	Glu	Gln	Val	Gln	Leu	Tyr	Arg	Glu	Thr	Val	Glu	Glu	Glu	Glu
1730						1735					1740			
Cys	Leu	Lys	Glu	Glu	Arg	Trp	Cys	Leu	Glu	Ser	Arg	Val	Ala	Gln
1745						1750					1755			
Leu	Arg	Glu	Ala	Ser	Ala	Ala	Ala	Lys	Gln	Gln	Arg	Gln	Glu	Val
1760						1765					1770			
Ala	Ala	Lys	Ala	Asn	Glu	Val	Gln	Glu	Arg	Leu	Asp	Ser	Met	Ala
1775						1780					1785			
Arg	Arg	Cys	Ile	Ala	His	Glu	Gly	Asp	Ala	Pro	Gln	Arg	Ala	Asp
1790						1795					1800			
Gly	Arg	Asp	Asp	Ala	Leu	Arg	Gln	Leu	Ala	Asn	Leu	Arg	Glu	Glu
1805						1810					1815			
Val	Lys	Leu	Ser	Glu	Lys	Gln	Lys	Ala	Met	Glu	Arg	Val	Ile	Pro
1820						1825					1830			
Gly	Val	Arg	Glu	Arg	Gln	Met	Arg	Leu	Glu	Ala	Ala	Glu	Glu	Gln
1835						1840					1845			
Arg	Ala	Asp	Leu	Glu	Ala	Arg	Leu	Val	Asp	Glu	Ala	Gly	Asp	Leu
1850						1855					1860			
Arg	Ser	Arg	Pro	Ala	Ala	Ser	Thr	Asn	Glu	Val	Asn	Leu	Tyr	Arg
1865						1870					1875			

Asp	Leu	Ala	Leu	Gln	Glu	His	Glu	Ala	Ala	Gln	Asn	Arg	Cys	Thr
1880						1885					1890			
Thr	Leu	Glu	Ala	Gln	Val	Ala	Ser	Leu	Thr	Ser	Asp	Arg	Asp	Asn
1895						1900					1905			
Gly	Arg	Gln	Gln	Glu	Ser	Ala	Asp	Leu	Ser	Glu	Ala	Gln	Arg	His
1910						1915					1920			
Leu	Asp	Asn	Val	Gln	Glu	Arg	Asp	Met	Ala	His	His	Arg	Cys	Ala
1925						1930					1935			
Ala	Leu	Glu	Glu	Gln	Asn	Ala	Ala	Met	Ala	Ser	Glu	Leu	Gln	Ala
1940						1945					1950			
Val	Lys	Ala	Lys	Leu	Arg	Gln	Ala	Ser	Val	Lys	Ala	Ser	Ser	Leu
1955						1960					1965			
Met	Thr	Arg	Leu	Ser	Ala	Ser	Ser	Ser	Gly	Ala	Gly	Gly	Val	Ser
1970						1975					1980			
Ala	Arg	Val	Arg	Val	Gly	Gly	Ser	Ser	Ala	Val	Pro	Gln	Ala	Ala
1985						1990					1995			
Pro	His	Arg	Asp	Ala	Glu	Leu	Ile	Ala	Glu	Val	Gly	Glu	Arg	Leu
2000						2005					2010			
Arg	Glu	Arg	Gly	Glu	Ala	Met	Arg	Leu	Leu	Ala	Glu	Gly	Val	Glu
2015						2020					2025			
Leu	Arg	Glu	Arg	Ala	Arg	Pro	Leu	Glu	Arg	Val	Leu	Ala	Glu	Lys
2030						2035					2040			
Leu	Ile	Gly	Asp	Arg	Arg	Thr	Ser	Asp	Ala	Glu	Glu	Val	Ala	Thr
2045						2050					2055			
Glu	Pro	Thr	Gln	Val	Arg	Arg	Asn	Ala	Ala	His	Ser	Arg	His	Leu
2060						2065					2070			
Asp	Ser	Arg	Glu	Ala	Gln	Leu	Asp	Glu	Arg	Ala	Ala	Arg	Leu	Arg
2075						2080					2085			
Glu	Lys	Glu	Gln	Gln	Leu	Leu	Arg	Val	Ala	Arg	Glu	Leu	Gln	Thr
2090						2095					2100			
Lys	Ser	Arg	Ala	Leu	Gln	Val	Leu	Tyr	Ala	Arg	Ala	Leu	Asn	Arg
2105						2110					2115			
Pro	Gln	Val	Thr	Ser	Leu	Leu	Leu	Thr	Ala	Asp	Gly	Asp	Asp	Thr
2120						2125					2130			
Ser	Tyr	Pro	Asp	Thr	Pro	Gln	Gln	Gln	Gln	Gln	Gly	Thr	Arg	Thr
2135						2140					2145			
Pro	Leu	Arg	Glu	Pro	Val	Tyr	Ser	Leu	Asp	Ser	Glu	Val	Ala	His

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Tyr Gly Arg Thr Ala Gly	Ala Ala Val Ser Ser Gly	Leu Ala Ser		
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Pro Leu Pro Arg Glu Pro	Pro Arg Ala Arg Met Val	His Arg Ala		
2180	2185	2190		
Val Glu Ala Thr Gly Thr	Glu Glu Asp Thr Gln Val	Arg Leu Thr		
2195	2200	2205		
Ala Ala Thr Glu Ala Tyr	Arg Asp Val Leu Tyr Glu	His Ile Leu		
2210	2215	2220		
Glu Ser Asn Gly Leu Gln	Gly Val Asp Val Leu Ala	Gln Tyr Leu		
2225	2230	2235		
Pro His His Thr Ser Gly	Gly Gly Leu Lys Thr Pro	Arg Leu Pro		
2240	2245	2250		
Gly Ser Gly Ile Ile Ser	Lys Thr Arg Ala Met Leu	Arg Ala Leu		
2255	2260	2265		
Glu Glu Arg Leu Gly Ala	Ser Arg Gly Val Gly Arg	Gly Val Asp		
2270	2275	2280		
Pro Ala Val Gln Glu Arg	Ser Leu Glu Ala Phe Arg	Arg Leu Glu		
2285	2290	2295		
Ala Ala Leu Ser Ala Leu	Cys Gly Gly Ser His Ala			
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Asp Gln Glu Leu Ser Ile Leu Lys	Leu Ile Leu Asp Leu Arg Ser Leu
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Gly Asp Val Glu Gly Ser Lys Lys Val Arg Arg Arg Val Arg Glu Ala
35 40 45

Leu Leu Lys Ser Ser Asp Asp Ser Glu Ala Met Ser Lys Val Asp Asp
50 55 60

Ile Ile Arg Arg Gly Lys Arg Thr Gln Ser Lys Leu Asp Gly Ser Tyr
65 70 75 80

Asp Glu Arg Gln Arg Leu Lys Arg Lys Arg Arg Glu Glu Asp Leu Ala
85 90 95

Ala Ala Ser Arg Leu Val Asp Val Glu Ala Gly Ser Gly Glu Asp Ser
100 105 110

Glu Gly Ser Ala Ser Thr Glu Glu Asp Gly Thr Glu Asp
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Val Gly Asp Phe Arg Arg Val Ile Glu Glu Glu Leu Thr Pro Gly Met
20 25 30

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35 40 45

Val Arg Val Glu Ala Gly Arg Ser Leu
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Val Lys Ala Cys Asn Asp Arg Ser His Arg His Thr His Thr His Thr
20 25 30
His Thr Asn Ser Phe Val Ser Gly Asp Val Phe His Val Trp Arg Val
35 40 45
Arg Ser Phe His Ser Ala Pro Ser Val Phe Phe Cys Phe Ser Val Cys
50 55 60
Thr His Leu Leu Phe Ser Pro Ser Ser Pro Tyr Ala His His Ala Arg
65 70 75 80
Val Cys Val Arg Ala Cys Val Cys Val Cys Val Cys Val Val
85 90

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20 25 30
Lys Asp Asp Ala Leu Phe Leu Val Arg Arg Pro Lys Tyr Leu Val Ala
35 40 45
Gln Ala Val Asn Leu Ser Gly Ser Val Val Phe Phe His Ser Leu Arg
50 55 60

Glu Val Asp Val Ser Val Gly Ser Ile Val Val Asn Ser Leu Ala Phe
 65 70 75 80
 Val Ile Thr Val Leu Met Ser Val Leu Val Leu Arg Glu Gly Leu Leu
 85 90 95
 Arg Ala Arg Thr Thr Ala Gly Cys Leu Leu Val Met Val Gly Thr Ala
 100 105 110
 Leu Cys Thr Tyr Ser Ser Ser Ala Ser
 115 120